

<https://www.pearson.com/channels/physics>

1. Intro to Physics Units	13. Rot.I Inertia & Energy	25. Electric Potential
2. 1D Motion/Kinematics	14. Torque & Rot. Dynamics	26. Capacitors & Dielectrics
3. Vectors	15. Rotational Equilibrium	27. Resistors & DC Circuits
4. 2D Kinematics	16. Angular Momentum	28. Magnetic Fields & Forces
5. Projectile Motion	17. Periodic Motion	29. Sources of Magnetic Field
6. Intro to Forces (Dynamics)	18. Waves & Sound	30. Induction and Inductance
7. Friction, Inclines, Systems	19. Fluid Mechanics	31. Alternating Current
8. Centripetal Force & Gravity	20. Heat and Temperature	32. Electromagnetic Waves
9. Work & Energy	21. Kinetic Theory of Gases	33. Geometric Optics
10. Conservation of Energy	22. 1st Law Thermodynamics	34. Wave Optics
11. Momentum & Impulse	23. 2nd Law Thermo.	35. Relativity
12. Rotational Kinematics	24. Electric Force & Field	36. Quantum Mechanics

1. Intro to Physics Units

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[Tilted Atwood machine with friction: diagram, normal force, friction force, acceleration, tension,
by Zak's Lab](#)

[Newton's 2nd Law \(21 of 21\) Will it Accelerate? Inclined Plane with Friction and a Pulley
by Step by Step Science](#)

[Newton's 2nd Law \(13 of 21\) Calculate Acceleration with Friction; Inclined Plane, Pulley, Two
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Stacked Blocks

[Friction & Newton's Laws Part 8 Staked Blocks FBD Physics
by Physicshelp Canada](#)

[Friction & Newton's Laws Part 7 Stacked Blocks FBD Physics
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Intro to Springs (Hooke's Law)

[High School Physics - Springs and Hooke's Law
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[Simple Harmonic Motion \(9 of 16\): Hooke's Law, Example Problems
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[Hooke's Law Demo: Assorted Springs
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8. Centripetal Forces & Gravitation

Uniform Circular Motion

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[Obtaining an expression for angular velocity and a formula for angle as a function of time.](#)
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Period and Frequency in Uniform Circular Motion

[5.1 Uniform Circular Motion](#)
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[Angular velocity, frequency and period for a spinning disk.](#)
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Centripetal Forces

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[Anderson Video - Spinning Room Amusement Park Ride](#)
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[Solving the conical pendulum \(uniform circular motion for a string that sags below the horizontal\).](#) by [Zak's Lab](#)

[Finding the tension in the string for a rock whirled around horizontally in uniform circular motion.](#)
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[Physics Help: Centripetal Force Free Body Diagrams Part 7](#)
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[Centripetal Force & Acceleration Physics Lesson Part 5 Dynamics](#)
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Vertical Centripetal Forces

[Anderson Video - Roller Coaster Loop the Loop
by Professor Anderson](#)

[Anderson Video - Forces on a Ball Attached to a String
by Professor Anderson](#)

[Normal force during a dip in the road.
by Zak's Lab](#)

[Computing normal force for a roller coaster rider at the top and bottom of a loop.
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[Centripetal Force Sample Problem Using Free Body Diagrams and a Ferris Wheel
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[Centripetal Force & Acceleration Physics Lesson Part 3 Dynamics for High School
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Flat Curves

[Anderson Video - Which Coin Flies Off Turntable First
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[Anderson Video - How Fast Can I Drive in a Circle
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[How fast can a car take a turn on a flat road \(with friction\)?
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[Car on a Flat Circular Track \(unbanked curve\)
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[Calculating the maximum speed for a car rounding a corner on a flat road, uniform circular motion. by Zak's Lab](#)

Banked Curves

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[Banked Curve with Friction: Finding Maximum and Minimum Speed](#)
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[Banked Curve Physics - Uniform Circular Motion](#)
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[Banked turn with friction.](#)
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[Ideal banking angle car rounds a banked turn without friction, frictionless banked curve](#)
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Newton's Law of Gravity

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[Anderson Video - Newton's Universal Gravitation](#)
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[Anderson Video - Weight on Earth vs Moon](#)
[by Professor Anderson](#)

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[Anderson Video - Dropping a Rock on Mars](#)
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[Newton's Law of Universal Gravitation by Professor Mac](#)
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[AP Physics 1: Universal Gravitation Review](#)
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[Gravity, Universal Gravitation Constant - Gravitational Force Between Earth, Moon & Sun.](#)
[Physics by The Organic Chemistry Tutor](#)

[Newton's law of gravitation explained](#)
[by PhysicsHigh](#)

[Newton's Law of Universal Gravitation](#)
[by Professor Dave Explains](#)

[12.2 Angular Momentum and Orbital Motion](#)
[by Jamie Turner](#)

[AP Physics 1: Universal Gravitation Review](#)
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Gravitational Forces in 2D

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Acceleration Due to Gravity

[Anderson Video - Hole Through the Center of the Earth](#)
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[by Simple Science and Maths](#)

[Analyzing the Apollo 15 Feather and Hammer Drop - A Basic, Introductory Free-Fall Problem](#)
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[Acceleration Due to Gravity: Slo-mo ball drop](#)
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Satellite Motion: Speed & Period

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[Problem by The Organic Chemistry Tutor](#)

[Calculating the Speed, Period, and Acceleration of a Satellite](#)

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Geosynchronous Orbits

[Calculating the Height of a Geosynchronous Satellite](#)

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by Derek Owens

[Altitude of Geostationary Orbit \(a special case of Geosynchronous Orbit\)](#)
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[Physics - Mechanics: Gravity \(15 of 20\) What is Geosynchronous Orbit?](#)
by Michel van Biezen

Overview of Kepler's Laws

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[Anderson Video - Speed of Pluto](#)
by Professor Anderson

[Anderson Video - Kepler's Second Law](#)
by Professor Anderson

[Earth Science Review Video 8: Astronomy Unit 3 - Kepler's 3 Laws](#)
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[Gravitation: Kepler's Laws of Planetary Motion. An Explanation](#)
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[Kepler's Laws of Planetary Motion](#)
by Science with Thomas Stevenson

[History of Astronomy Part 4: Kepler's Laws and Beyond](#)
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Kepler's First Law

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Kepler's Third Law

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[Kepler's Third Law Derivation](#)

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[How to solve a Kepler's Third Law problem](#)
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9. Work & Energy

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[by Zak's Lab](#)

[Work and Energy](#)
[by Professor Dave Explains](#)

Intro to Calculating Work

[Anderson Video - Work](#)
[by Professor Anderson](#)

[Anderson Video - Work and Dot Product](#)
[by Professor Anderson](#)

[Anderson Video - Work Done by Friction](#)
[by Professor Anderson](#)

[Anderson Video - Work due to Multiple Forces](#)
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[Work done by a constant force + examples.](#)
[by Zak's Lab](#)

[Work and the Dot Product](#)
[by Jennifer Cash](#)

[Work: Angle Affects](#)
[by Jennifer Cash](#)

[Work: by a constant force](#)
[by Jennifer Cash](#)

Net Work & Work-Energy Theorem

[Anderson Video - Work Lowering an Object](#)
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[Work Energy Principle](#)
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[Work done by a constant force on a brick, and final speed. Includes friction.](#)
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[Calculating work done by drag in a vertical fall. Work done by gravity and drag given final speed.](#)
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[Calculating total work and final speed when the force is constant over time.](#)
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[Calculating net work and final speed, with applied force at an angle and friction.](#)
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[Physics Lesson: Kinetic Energy and Work, Conservation Part 3 Help Lesson](#)
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[Work - Kinetic Energy Theorem](#)
[by Jennifer Cash](#)

[Work: Introduction](#)
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Work On Inclined Planes

[Physics 8 Work, Energy, and Power \(7 of 37\) Inclined Plane \(Friction\)](#)
by Michel van Biezen

[Physics 8 Work, Energy, and Power \(6 of 37\) Inclined Plane \(Frictionless\)](#)
by Michel van Biezen

[Work done by friction at constant speed on inclined plane. Work energy theorem friction concepts.](#) by Zak's Lab

[Calculating the total work and final speed for a block sliding down an incline.](#)
by Zak's Lab

Work By Springs

[Anderson Video - Work Done by a Spring](#)
by Professor Anderson

[Anderson Video - Box Hits Spring with Friction](#)
by Professor Anderson

[Find the spring constant and the work done by/on the spring.](#)
by Zak's Lab

[Work done *on* a spring vs. work done *by* a spring.](#)
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[Work: Spring Forces](#)
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Work As Area Under F-x Graphs

[Work as area under curve | Work and energy | Physics | Khan Academy](#)
by Khan Academy Physics

[Energy, Work & Power \(22 of 31\) Work from the Force vs. Displacement Graph, No. 1](#)
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[Calculating work and final speed from a graph of \$F\(x\)\$. varying force.](#)
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[Work by Variable Forces](#)
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Power

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[Anderson Video - Hydroelectric Dam](#)
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[Anderson Video - Your Electric Bill](#)
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[Calculating Power in Physics: Example Problems](#)
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[Average power output for a crane lifting a load.](#)
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[Introduction to power: definition, examples, power vs. time graphs, constant velocity power formula.](#) [by Zak's Lab](#)

[Power: Introduction](#)
[by Jennifer Cash](#)

10. Conservation of Energy

Intro to Energy Types

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[by Professor Anderson](#)

[Physics - Energy - Types of Energy](#)
[by expertmathstutor](#)

[Kinetic Energy and Potential Energy](#)
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Gravitational Potential Energy

[Anderson Video - Potential Energy and Gravity
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[Anderson Video - Mt Whitney Potential Energy
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[Gravitational Potential Energy
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[What is Gravitational Potential Energy - a deeper understanding
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[Physics - Mechanics:Gravity \(16 of 20\) Gravitational Potential Energy
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[Universal Gravitational Potential Energy Derivation
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[Gravitational Potential and Gravitational Potential Energy
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[Universal Gravitational Potential Energy Introduction
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[What is gravitational potential energy??
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[Gravitational Potential Energy. Example Problems
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[Gravitational potential energy and the work done by gravity.
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[Potential Energy of Gravity
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Intro to Conservation of Energy

[Anderson Video - Energy in Free Fall](#)

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[Quick proof of conservation of energy.](#)

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[Kinetic Energy and Work Physics Lesson Conservation Part 1](#)

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[Conservation of Energy: Free Fall, Springs, and Pendulums](#)

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[Mechanical Energy Conservation Equation](#)

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[Conservation of Energy: Concept](#)

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Energy with Non-Conservative Forces

[Conservation of energy with a friction term, sliding down the hill problem.](#)

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[Block projected by a spring, rough surface. Rough surface work done by friction sliding to a stop. by Zak's Lab](#)

[Energy Conservation Slide Problem](#)

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[Non-Conservative Work Equation](#)

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[Non-conservative forces](#)

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Springs & Elastic Potential Energy

[Anderson Video - Energy- Springs
by Professor Anderson](#)

[Anderson Video - Spring Mechanics
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[Anderson Video - Energy- Spring Launcher
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[Anderson Video - Horizontal vs Vertical Springs
by Professor Anderson](#)

[Anderson Video - Stretched Spring and Energy
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[Max speed of a block shot by a spring conservation of energy. Spring-block maximum speed.
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[Spring potential energy and work done by a spring. Negative work done by spring during
compression. by Zak's Lab](#)

[Simple Harmonic Motion: Hooke's Law
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[Potential Energy of a Spring
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Solving Projectile Motion Using Energy

[Anderson Video - Ball Toss Example
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[AP Physics 1: Work and Energy 10: Conservation of Energy: Projectile Problem
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[Ch 5 - Work and Energy - Conservation Of Energy With Projectile Motion.mov
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Rollercoaster Problems

[Anderson Video - Bicycle Down and Up Hill Example
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[Normal force at bottom of a bowl. cart rolls into a bowl energy and circular motion physics
problem. by Zak's Lab](#)

[Speed and normal force through a roller coaster loop. 9G acceleration!
by Zak's Lab](#)

[Conservation of energy. minimum height for the roller coaster loop. minimum speed for the loop.
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[Calculate the height to go around a loop of a roller coaster
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[Physics Roller Coaster Problem Conservation of Energy
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Pendulum Problems

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[Simple pendulum maximum starting height for maximum tension in the string before it breaks.
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[Simple pendulum: find the pendulum speed at the bottom and tension in the string at the
bottom. by Zak's Lab](#)

[Pendulum speed at the bottom using energy and tension at the bottom using circular motion.
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[Energy concept question: compare the impact speed of three projectiles.
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Energy in Connected Objects (Systems)

[Atwood machine with a spring: maximum stretch, maximum speed, and acceleration.](#)
[by Zak's Lab](#)

[Use conservation of energy to find the final speed of the mass/pulley system.](#)
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[Computing speed and maximum height for a block shot vertically by a spring. Max height of the mass.](#) [by Zak's Lab](#)

[Elastic Energy Springs Part 2 Physics Tutorial](#)
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Force & Potential Energy

[Anderson Video - Force and Potential Energy Example](#)
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[Calculating Force From Potential Energy](#)
[by Scott Secrest](#)

[25.1 Force is the Derivative of Potential](#)
[by MIT OpenCourseWare](#)

[Potential energy function and equilibria starting from a force function.](#)
[by Zak's Lab](#)

[Computing force from a potential energy function \(calculus based physics\)](#)
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11. Momentum & Impulse

Intro to Momentum

[Anderson Video - Momentum and Force](#)
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[Anderson Video - Momentum and Rocket Propulsion](#)
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[Physics introduction: momentum and impulse for an accelerating cart using final and initial momentum by Zak's Lab](#)

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[by Bozeman Science](#)

[Momentum as a Vector](#)
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[Momentum Introduction](#)
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Intro to Impulse

[Anderson Video - Impulse Problem](#)
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[Calculating the average force during a bounce. Force, impulse and time relationship: \$F=dp/dt\$.](#)
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Impulse with Variable Forces

[Anderson Video - Impulse of a Tennis Ball](#)
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[Physics 10 Momentum and Impulse \(14 of 30\) Ball Hitting Wall: Ex. 4](#)
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[Force-time graph used to calculate impulse and work.](#)
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Intro to Conservation of Momentum

[Anderson Video - Is Momentum Conserved for a Tossed Object](#)
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Push-Away Problems

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[More Push Away Problems Example 1](#)

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Types of Collisions

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[Elastic and Inelastic Collisions](#)

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[Elastic and Inelastic collisions : Conceptual Introduction](#)

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Completely Inelastic Collisions

[Anderson Video - Momentum in 1D Car Collision](#)

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[Anderson Video - Change in Momentum](#)

[by Professor Anderson](#)

[Physics 10 Momentum and Impulse \(29 of 30\) 2-D Inelastic Collision Ex.3](#)

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[Clay ball stops a block: minimum speed to stop the block, find the initial speed and energy lost.](#)

[by Zak's Lab](#)

[Combined masses collide, speed after each collision, energy lost in each collision.](#)

[by Zak's Lab](#)

[Momentum, energy, speed, impulse and average force in a perfectly inelastic collision.](#)
[by Zak's Lab](#)

[Energy lost in inelastic collision. Conservation of momentum inelastic collision missing energy.](#)
[by Zak's Lab](#)

[Momentum \(9 of 16\) Inelastic Collisions, Example 3](#)
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[Momentum \(8 of 16\) Inelastic Collisions, Example 2](#)
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[Momentum \(7 of 16\) Inelastic Collisions, Example 1](#)
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[Perfectly Inelastic Collisions](#)
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Adding Mass to a Moving System

[Anderson Video - Momentum: Bird vs Bug](#)
[by Professor Anderson](#)

[Conservation of Momentum Physics Problems - Basic Introduction](#)
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[Object dropped into a cart final speed: momentum conservation hay bail dropped into cart physics.](#)
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[Momentum conservation: shooting clay balls at a cart. Multiple inelastic collisions.](#)
[by Zak's Lab](#)

Collisions & Motion (Momentum & Energy)

[Anderson Video - Momentum- Collisions in 2D](#)
[by Professor Anderson](#)

[Anderson Video - Collision of Box Sliding Down Hill](#)
[by Professor Anderson](#)

[Anderson Video - Weighing Lunch
by Professor Anderson](#)

[Spring gun momentum problem: spring with known compression launches a ball to accelerate a cart. by Zak's Lab](#)

[Physics momentum explosion with three objects: find the speeds given directions and total energy. by Zak's Lab](#)

[1D perfectly inelastic collision with a slide to a stop. Conservation of momentum then work-energy. by Zak's Lab](#)

[Momentum and energy explosion problem: find the percent energy in each mass explosion problem. by Zak's Lab](#)

Ballistic Pendulum

[Anderson Video - Ballistic Pendulum
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[Inelastic pendulum collision with conservation of energy and momentum for collision followed by rise by Zak's Lab](#)

[Ballistic pendulum with spring gun: inelastic pendulum collision followed by energy conservation. by Zak's Lab](#)

[Momentum, Impulse & Collisions: Ballistic Pendulum, Example Problems
by Step by Step Science](#)

[Momentum, Impulse & Collisions: Ballistic Pendulum, An Explanation
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Collisions with Springs

[Anderson Video - Spring Problem
by Professor Anderson](#)

[Maximum compression of the spring in elastic collision: perfectly symmetric collision problem.
by Zak's Lab](#)

[Coiled spring launches two masses, momentum and energy with two masses and compressed spring. by Zak's Lab](#)

Elastic Collisions

[Perfectly elastic collision in one dimension algebra trick, elastic collision algebra one dimension. by Zak's Lab](#)

[Momentum \(16 of 16\) Elastic Collisions, Example 6 by Step by Step Science](#)

[Momentum \(15 of 16\) Elastic Collisions, Example 5 by Step by Step Science](#)

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Intro to Center of Mass

[Anderson Video - Center of Mass by Professor Anderson](#)

[Perfectly elastic collision in center of mass reference frame, one dimensional collision. by Zak's Lab](#)

[Center of mass velocity and the center of mass reference frame. by Zak's Lab](#)

[Center of mass vector in 2D and center of mass components + 2 dimensional center of mass example. by Zak's Lab](#)

12. Rotational Kinematics

Rotational Position & Displacement

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[Angular Motion and Torque
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[Angular Position and Displacement
by Jennifer Cash](#)

[Angle Units
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More Connect Wheels (Bicycles)

[Anderson Video - Non-Uniform Circular Motion
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[Angular Motion and Torque
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[Angular Velocity and Acceleration
by Jennifer Cash](#)

Equations of Rotational Motion

[Anderson Video - Rotational Kinematic Equations](#)
[by Professor Anderson](#)

[Anderson Video - Rotational Motion for Merry Go Round](#)
[by Professor Anderson](#)

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[by Step by Step Science](#)

[Angular Motion and Torque](#)
[by Professor Dave Explains](#)

[Constant Angular Acceleration](#)
[by Jennifer Cash](#)

Converting Between Linear & Rotational

[Anderson Video - Spinning Ice Skater](#)
[by Professor Anderson](#)

[Relating angular and regular motion variables | Physics | Khan Academy](#)
[by Khan Academy Physics](#)

[Rotational Motion: An Explanation, Angular Displacement, Velocity and Acceleration](#)
[by Step by Step Science](#)

[Rotational Motion](#)
[by Bozeman Science](#)

[Angular & Translational Quantities](#)
[by Jennifer Cash](#)

Types of Acceleration in Rotation

[Types of Acceleration in Rotation](#)
[by Clutch Prep](#)

[Rotational Motion: An Explanation, Angular Displacement, Velocity and Acceleration](#)

[by Step by Step Science](#)

Rolling Motion (Free Wheels)

[Rotational Motion: Kinematic Equations, Example Problems
by Step by Step Science](#)

Intro to Connected Wheels

[AP Physics 1: Rotation 8: Constant Angular Acceleration: 2 Wheels Linked by Belt or 2 Meshing Gears by Yau-Jong Twu](#)

13. Rotational Inertia & Energy

More Conservation of Energy Problems

[Angular dynamics and energy conservation, spin rate in a kinetic energy recovery system \(KERS\). by Zak's Lab](#)

Conservation of Energy in Rolling Motion

[Rolling without slipping problems | Physics | Khan Academy
by Khan Academy Physics](#)

Parallel Axis Theorem

[Physics - Mechanics: Moment of Inertia \(1 of 7\) Parallel Axis Theorem: Example 1
by Michel van Biezen](#)

[29.4 Parallel Axis Theorem
by MIT OpenCourseWare](#)

[Parallel Axis Theorem & Moment of Inertia - Physics Practice Problems
by The Organic Chemistry Tutor](#)

Intro to Moment of Inertia

[Anderson Video - Moment of Inertia
by Professor Anderson](#)

[Moment of Inertia](#)
[by Jennifer Cash](#)

Moment of Inertia via Integration

[29.5 Deep Dive - Moment of Inertia of a Sphere](#)
[by MIT OpenCourseWare](#)

[29.3 Moment of Inertia of a Disc](#)
[by MIT OpenCourseWare](#)

[Rotational Inertia of a Slender Rod of NON-UNIFORM Mass Density \(See Note in Description.\)](#)
[by lasseviren1](#)

[29.2 Moment of Inertia of a Rod](#)
[by MIT OpenCourseWare](#)

Moment of Inertia of Systems

[Moment of Inertia of a system of masses](#)
[by Rod](#)

[Moment of Inertia](#)
[by Jennifer Cash](#)

Moment of Inertia & Mass Distribution

[More on moment of inertia | Moments, torque, and angular momentum | Physics | Khan Academy](#) [by Khan Academy Physics](#)

Intro to Rotational Kinetic Energy

[Anderson Video - Race Down Incline](#)
[by Professor Anderson](#)

[Rotational Kinetic Energy](#)
[by lasseviren1](#)

[Rotational Kinetic Energy](#)
[by Jennifer Cash](#)

Energy of Rolling Motion

[Anderson Video - Pure Rolling Motion](#)
[by Professor Anderson](#)

[Rotational Kinetic Energy](#)
[by wuphysics](#)

Types of Motion & Energy

[Total Kinetic Energy \(Translational and Rotational\)](#)
[by Andrey K](#)

Conservation of Energy with Rotation

[Conservation of Energy with Rotation](#)
[by Clutch Prep](#)

[Potential energy of a rigid body formula, and quick example of rigid body potential.](#)
[by Zak's Lab](#)

Torque with Kinematic Equations

[Rotational Kinematics & Torque](#)
[by Matt Becker](#)

[Rotational Kinematics & Torque](#)
[by Matt Becker](#)

[Kinematic rotations and torque equations](#)
[by Physics screencasts](#)

[Torque with Kinematic Equations](#)
[by Clutch Prep](#)

Rotational Dynamics with Two Motions

[Pulley Physics Problem - Finding Acceleration and Tension Force
by The Organic Chemistry Tutor](#)

[Rotational motion: Finding the velocity of the hanging mass and angular momentum of the
sphere. by John Mwenya](#)

[Rotational Dynamics: The Simple Yo-Yo Problem
by Physics Ninja](#)

[Physics - Application of the Moment of Inertia \(6 of 11\) Acceleration=? When Pulley Has Mass
\(\$\mu=0\$ \) by Michel van Biezen](#)

[Rotational Dynamics \(part II\)
by lasseviren1](#)

[Rotational Dynamics with Two Motions
by Clutch Prep](#)

[Angular Momentum and a Pulley Mass System
by Flipping Physics](#)

Rotational Dynamics of Rolling Motion

[AP Physics C - Rotational Dynamics
by Dan Fullerton](#)

[ROLLING MOTION | Rolling Without Slipping | Engineering Dynamics
by LearnWithKristin](#)

[Rolling Without Slipping Introduction and Demonstrations
by Flipping Physics](#)

[Rolling Without Slipping - A sticky adventure in rotation and translation | Doc Physics
by Doc Schuster](#)

[Rotational Dynamics of Rolling Motion
by Clutch Prep](#)

[Rotational Kinetic Energy and Moment of Inertia Examples & Physics Problems
by The Organic Chemistry Tutor](#)

14. Torque & Rotational Dynamics

Torque & Acceleration (Rotational Dynamics)

[Rotational Dynamics Intro With Formula & Examples \(AP Physics\)](#)
by Math And Physics Tutor

[Rotational Dynamics](#)
by Matt Becker

[30.1 Introduction to Torque and Rotational Dynamics](#)
by MIT OpenCourseWare

[Rotational Dynamics - A-level Physics \(Engineering\)](#)
by Science Shorts

[AP Physics 1: Rotational Dynamics Review](#)
by Flipping Physics

[Rotational Dynamics - Basic Introduction](#)
by The Organic Chemistry Tutor

[Physics - Mechanics: Application of Moment of Inertia and Angular Acceleration \(2 of 2\)](#)
by Michel van Biezen

How to Solve: Energy vs Torque

[Chap 12. 7 - Torque and energy \(b\): Example 12.8 \(energy increase of cylinder rolling down ramp\)](#) by Bevan Smith

[Torque Does Work!!! Awesome!!! | Doc Physics](#)
by Doc Schuster

cccc

Physics - Application of the Moment of Inertia (3 of 11) Solid Cylinder Rolling Down an Incline
by Michel van Biezen
25 views
06:59

How to Solve:Energy vs Torque

by Patrick Ford

1

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45 views

10:21

Rotational Kinetic Energy (part II)

by lasseviren1

13 views

08:32

Rotational Power, Work, Energy, Torque & Moment of Inertia - Physics Problems

by The Organic Chemistry Tutor

37 views

12:17

How to Solve: Energy vs Torque

by Clutch Prep

10 views

10:22

Rotational Kinetic Energy

by lasseviren1

16 views

09:04

Torque Due to Weight

8 videos | 3 questions

VIDEOS

Torque Due to Gravity

by Bennett Science

35 views

06:56

Hewitt-Drew-it! PHYSICS 41.Torques on a Plank

by Marshall Ellenstein
14 views
05:26

MCAT video: Torque Forces Applied to the Forearm in Equilibrium
by MCAT Prep
21 views
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Torque Due to Weight
by Patrick Ford
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67 views
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30.5 Torque from Gravity
by MIT OpenCourseWare
23 views
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Physics - Mechanics: Ch 15 Torque (17 of 25) Body Mechanics: Ex. 5, $F=?$ Leg Lifting Weights
by Michel van Biezen
19 views
08:51

Physics - Mechanics: Torque (5 of 7) The Bicep
by Michel van Biezen
17 views
06:46

Torque Due to Weight
by Clutch Prep
40 views
10:20
PRACTICE
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two kids play on a seesaw that has mass 20 kg, length 3 m, and its fulcrum at its mid-point. The seesaw is originally horizontal, when the kids sit at the edge of opposite ends ($m_{\text{LEFT}} = 25 \text{ kg}$, $m_{\text{RIGHT}} = 30 \text{ kg}$). Calculate the Net Torque from the 3 weights acting on the seesaw, immediately after the kids sit (simultaneously) on their respective places.

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A guy standing straight up stretches out his arm horizontally while holding a 60 lb (27.2 kg) barbell. His arm is 64 cm long and weighs 45 N. Calculate the Net Torque that the barbell and the weight of his arm produce about his shoulder. You may assume that his arm has uniform mass distribution.

2

commentsIcon

27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Consider the diagram below of a typical human arm lifting a weight in a motion known as a "curl." Peak human training of such an arm can result in record lifts of 110 kg. Increasing a lift by a single kilogram in competition can make all the difference. Now, suppose a particular human had a bicep tendon that attached just 5.0 mm farther from the elbow joint than usual. Given the same bicep strength as other peak-condition athletes, what weight could this person curl (lift in this way)?

6 views

Intro to Torque

10 videos | 4 questions

VIDEOS

What is Torque? | Physics | Extraclass.com

by Extraclass Official

36 views

05:21

Physics, Torque (2 of 13) Force at Right Angle to Object

by Step by Step Science

31 views

08:48

Physics, Torque (1 of 13) An Explanation

by Step by Step Science

41 views

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Intro to Torque
by Patrick Ford
7
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101 views
15:04

Torque
by Bozeman Science
17 views
07:03

Torque Physics: Lever Arm and Force
by PremedHQ Science Academy
38 views
03:27

What is Torque? - Torque basics explained
by The Engineering Mindset
13 views
02:10

Torque, Basic Introduction, Lever Arm, Moment of Force, Simple Machines & Mechanical Advantage
by The Organic Chemistry Tutor
39 views
21:17

Torque of fish pulling on pole
by Patrick Ford
2
commentsIcon
67 views
04:26

Maximum torque on wrench

by Patrick Ford

40 views

02:58

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 4 m-long ladder rests horizontally on a flat surface. You try to lift it up by pulling on the left end of the ladder with a force of 50 N that makes an angle of 37° with the vertical axis. Calculate the torque that your force produces, about an axis through the other (right) end of the ladder.

1

commentsIcon

33 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You pull with a 100 N at the edge of a 25 cm long wrench, to tighten a bolt (gold), as shown. The angle shown is 53° . Calculate the torque your force produces on the wrench, about an axis perpendicular to it and through the bolt.

2

commentsIcon

40 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Some trainyards have very large horizontal disks that engines can drive onto, which then rotate to turn the engine around to face the opposite direction. Suppose the train engine is 12 m long and centered at the disk's axis. A 500 N force is applied 5.0 m from the center of the engine, with a rope that makes a angle with the side of the engine. What magnitude torque is being applied to the train engine?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Model the propeller of an airplane as a single thin rod, 2.2 m long, with a mass of 80 kg. How much torque is required to bring this propeller from rest to 600 rpm in 2.9 s?

8 views

Net Torque & Sign of Torque

14 videos | 1 question

VIDEOS

Anderson Video - Torque Force Times Lever Arm

by Professor Anderson

26 views

07:25

Anderson Video - Torque Catapult

by Professor Anderson

12 views
11:33

Anderson Video - Torque Cross Product
by Professor Anderson
12 views
14:05

Net Torque & Sign of Torque
by Patrick Ford
6
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78 views
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Anderson Video - Torque of Bullet Into Door
by Professor Anderson
11 views
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Anderson Video - Torque on a Bolt
by Professor Anderson
20 views
03:00

Anderson Video - Torque is a Vector
by Professor Anderson
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Net Torque Problems
by Frank McCulley
29 views
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Torque and Net Torque Problem Solving
by PhysicsOMG

22 views
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Physics - Mechanics: Ch 15 Torque Fundamentals (10 of 13) How to Calculate the Net Torque?
Ex. 1
by Michel van Biezen
23 views
03:24

torque: sign and net torque
by Rachel Pollock
17 views
06:07

Net Torque On An Object (AP Physics 1)
by Math And Physics Tutor
33 views
12:43

Net Torque & Sign of Torque
by Clutch Prep
14 views
09:05

Angular Motion and Torque
by Professor Dave Explains
31 views
07:39

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 2-m long bar is free to rotate about an axis located 0.7 m from one of its ends. Two forces act on the bar, $F_1 = 100 \text{ N}$ and $F_2 = 200 \text{ N}$, and both make 30° with the bar. Find the Net Torque on the bar. Use $\pm$ to indicate direction.

4

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53 views

Torque on Discs & Pulleys

10 videos | 4 questions

VIDEOS

Physics - Application of the Moment of Inertia (6 of 11) Acceleration=? When Pulley Has Mass
($\mu=0$)
by Michel van Biezen
32 views
07:33

31.5 Massive Pulley Problems
by MIT OpenCourseWare
65 views
03:44

Calculating Net Torque Example Problem - disk rotating
by Hopped Up on Physics
58 views
08:03

Torque on Discs & Pulleys
by Patrick Ford
6
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93 views
08:28

2 Masses on a Pulley - Torque Demonstration
by Flipping Physics
29 views
13:48

Torque On a Pulley Example
by wuphysics
42 views
08:32

Physics - Application of the Moment of Inertia (5 of 11) Object Hanging From a Rotating Disk

by Michel van Biezen
32 views
04:34

Torque on Discs & Pulleys
by Clutch Prep
22 views
08:29

Example Net Torque on a disc
by Clutch Prep
19 views
08:32

Net Torque on a disc
by Patrick Ford
2
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31 views
08:31
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The composite disc below is free to rotate about a fixed axis, perpendicular to it and through its center. All forces are 100 N, and all angles are 37° . The dotted lines are either exactly parallel or exactly perpendicular to each other. The inner (darker) and outer (lighter) discs have radii 3 m and 5 m, respectively. Calculate the Net Torque produced on the composite disc, about an axis perpendicular to it and through its center. Use +/- to indicate direction.

1

commentsIcon
32 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A square with sides 4 m long is free to rotate around an axis perpendicular to its face and through its center. All forces shown are 100 N and act simultaneously on the square. The angle shown is 30° . Calculate the Net Torque that the forces produce on the square, about its axis of rotation.

24 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A rope is wrapped around a pulley and two blocks (A and B) are attached to the two ends of the rope, and . The pulley itself can be modeled as a solid cylinder with radius 4.5 cm, and mass . What is the magnitude of the acceleration of block A?

14 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a force is applied tangentially to the edge of a solid cylinder of radius and mass . causing an angular acceleration . If the same force is applied tangentially to a solid sphere also of radius and mass . what will be the angular acceleration?

6 views

15. Rotational Equilibrium

Equilibrium with Multiple Objects

9 videos | 2 questions

VIDEOS

Physics, Torque (13 of 13) Static Equilibrium, Mobile Calculations

by Step by Step Science

67 views

09:13

The Scaffold

by Rory Korzan

26 views

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The system in the figure is in equilibrium with the string

by WNY Tutor

30 views

09:19

Position of second kid on seesaw

by Patrick Ford

1

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1

rankIcon

56 views

04:37

Physics, Torque (3 of 13) Balance Beam
by Step by Step Science
42 views
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Equilibrium with Multiple Objects: Example: Multiple objects hanging
by Clutch Prep
24 views
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Equilibrium with Multiple Objects: Example: Position of second kid on seesaw
by Clutch Prep
47 views
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Practice Problem: Torque on a Mobile
by Professor Dave Explains
57 views
04:57

Multiple objects hanging
by Patrick Ford
2
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1
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31 views
11:19

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 20 kg, 5 m-long bar of uniform mass distribution is attached to the ceiling by a light string, as shown. Because the string is off-center (2 m from the right edge), the bar does not hang horizontally. To fix this, you place a small object on the right edge of the bar. What mass should this object have, to cause the bar to balance horizontally?

1
commentsIcon
34 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two kids ($m_{\text{LEFT}} = 50 \text{ kg}$, $m_{\text{RIGHT}} = 40 \text{ kg}$) sit on the very ends of a 5 m-long, 30 kg seesaw. How far from the left end of the seesaw should the fulcrum be placed so the system is at equilibrium? (Remember the weight of the seesaw!)

7

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28 views

Equilibrium with Multiple Supports

10 videos | 1 question

VIDEOS

Anderson Video - Torque and Tipping Point

by Professor Anderson

29 views

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Anderson Video - Leaning Ladder Problem

by Professor Anderson

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Static Equilibrium part 2

by Mr. Woodward

39 views

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Equilibrium with Multiple Supports

by Patrick Ford

5

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46 views

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Statics Example: 2D Rigid Body Equilibrium

by UWMC Engineering

94 views

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Tension Force Physics Problems

by The Organic Chemistry Tutor

61 views

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Equilibrium of a Particle (2D x-y plane forces) | Mechanics Statics | (Learn to solve any question)

by Question Solutions

90 views

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Mechanical Engineering: Particle Equilibrium (7 of 19) Tension of Cables Attached to Hanging Object

by Michel van Biezen

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AP Physics 1: Equilibrium 5: Static Equilibrium Problem 4: Object Hung by 3 Cables

by Yau-Jong Twu

88 views

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Equilibrium of Rigid Bodies (2D - Coplanar Forces) | Mechanics Statics | (Solved examples)

by Question Solutions

99 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A board 8 m in length, 20 kg in mass, and of uniform mass distribution, is supported by two scales placed underneath it. The left scale is placed 2 m from the left end of the board, and the right scale is placed on the board's right end. A small object 10 kg in mass is placed on the left end of the board. Calculate the reading on the left scale. (Use $g=10 \text{ m/s}^2$.) BONUS: Calculate the reading on the right scale.

4

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Center of Mass & Simple Balance

9 videos | 1 question

VIDEOS

Centre/Center of Mass and Balance

by Re: cOg Mission

31 views

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Centre of Mass and Stability - Different Objects - GCSE Physics

by GCSE Physics Ninja

44 views

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Center of Mass and Stability

by North Carolina School of Science and Mathematics

65 views

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Center of Mass & Simple Balance

by Patrick Ford

3

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1

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53 views

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Balance and the Center of Mass

by Paul Nord

34 views

02:09

Center of Mass and Balance

by Zahi Haddad

36 views

20:02

Biomechanics - Centre of Mass and Stability

by Rich

61 views

12:43

Center of Mass & Simple Balance

by Clutch Prep

33 views

10:23

Non-Uniform Mass Distributions (Find Center of Mass)

by Patrick Ford

1

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54 views

09:42

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 70 kg, 1.90 m man doing push-ups holds himself in place making 20° with the floor, as shown. His feet and arms are, respectively, 1.15 m below and 0.4 m above from his center of mass. You may model him as a thin, long board, and assume his arms and feet are perpendicular to the floor. How much force does the floor apply to each of his hands? (Use $g=10 \text{ m/s}^2$.) BONUS: How much force does the floor apply to each of his feet?

1

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Equilibrium in 2D - Ladder Problems

9 videos | 1 question

VIDEOS

Static Equilibrium: Ladder against Wall

by xmtutor

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Physics: Basic Statics w/ Ladders

by Stephan Pichardo

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Physics, Torque (12 of 13) Static Equilibrium, Ladder Problem

by Step by Step Science

116 views

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Equilibrium in 2D - Ladder Problems

by Patrick Ford

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60 views

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Ladder Equilibrium Problem

by Mrs. Smith Physics

40 views

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Ladder Example for Static Equilibrium

by C. Stephen Murray

44 views

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Leaning Ladder Equilibrium Problem: Find Minimum Angle

by Physics Ninja

70 views

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Equilibrium in 2D Ladder Problems

by Clutch Prep

30 views

13:44

Minimum angle and friction for ladder

by Patrick Ford

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53 views

16:02

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A ladder of mass 20 kg (uniformly distributed) and length 6 m rests against a vertical wall while making an angle of $\theta = 60^\circ$ with the horizontal, as shown. A 50 kg girl climbs 2 m up the ladder. Calculate the magnitude of the total contact force at the bottom of the ladder (Remember: You will need to first calculate the magnitude of N, BOT and f, S).

5

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Beam / Shelf Against a Wall

9 videos | 3 questions

VIDEOS

Torque Example #2: Hanging Sign Problem

by Denise Labieniec

89 views

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CH9 Problem7 Static Equilibrium

by Pulkrit Singhal

66 views

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AP Physics 1: Equilibrium 6: Problem 5: Beam Supported by Wall and Slanted Cable

by Yau-Jong Twu

61 views

10:30

Beam / Shelf Against a Wall

by Patrick Ford

5

commentsIcon

1

rankIcon

36 views

17:09

12) Static Equilibrium - beam on wall 1 - numerical

by Anthony Buonaquisti

55 views

08:43

Physics, Torque (11 of 13) Static Equilibrium, Hanging Sign No. 5

by Step by Step Science

55 views

11:56

Physics - Mechanics: Torque (1 of 7) Mass on Rod and Cable

by Michel van Biezen

20 views

08:25

Beam Shelf Against a Wall

by Clutch Prep

27 views

17:10

Beam supporting an object

by Patrick Ford

6

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32 views

13:40

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A beam 200 kg in mass and 6 m in length is held horizontally against a wall by a hinge on the wall and a light rod underneath it, as shown. The rod makes an angle of 30° with the wall and connects with the beam 1 m from its right edge. Calculate the angle that the Net Force of the hinge makes with the horizontal (use +/- for above/below +x axis, and use $g=10 \text{ m/s}^2$.)

2

commentsIcon

18 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A beam 200 kg in mass and 4 m in length is held against a vertical wall by a hinge on the wall and a light horizontal cable, as shown. The beam makes 53° with the wall. At the end of the beam, a second light cable holds a 100 kg object. Calculate the angle that the Net Force of the hinge makes with the horizontal (use +/- for above/below +x axis, and use $g=10 \text{ m/s}^2$.)

3

commentsIcon

25 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The figure shows a 75 kg construction worker sitting on a massless beam with a length of 3.0 m. If the tension in the cable is 1100 N, how far from the left end of the beam is the construction worker sitting?

16 views

More 2D Equilibrium Problems

8 videos | 3 questions

VIDEOS

Statics: Problem 5-32: Equilibrium of a Rigid body 2D

by Mechanical Engineering with Dr. Sanei

69 views

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Statics Example: 2D Rigid Body Equilibrium 2

by UWMC Engineering

91 views

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[Statics] Equilibrium of Rigid Bodies 2D Problems

by Math Engine

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Inclined beam against the floor

by Patrick Ford

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Statics Lecture 19: Rigid Body Equilibrium -- 2D supports

by Yiheng Wang

46 views

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2d Cable Equilibrium Problem

by John Tingerthal

20 views

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2D Equilibrium Problems

by Clutch Prep

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How to Solve a 2D Equilibrium Problem - Step by Step Solution

by AF Math & Engineering

58 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 200 kg, 10 m-long beam is held at equilibrium by a hinge on the floor and a force you apply on it via a light rope connected to its edge, as shown. The beam is held at 53° above the horizontal, and your rope makes an angle of 30° with it. Calculate the angle that the Net Force of the hinge makes with the horizontal (use +/- for above/below +x, and use $g=10 \text{ m/s}^2$.)

5

commentsIcon

26 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 3.0 m wood plank is supported by two scales. One scale is at the right end of the plank. The other scale is positioned such that it reads 620 N. If the mass of the plank is 85 kg, how far is the second scale from the right end of the plank?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a certain car has a track width of 1.6 m and a center of gravity located 0.40 m above the center of the track. What is the critical angle for this car?

5 views

Review: Center of Mass
7 videos | 2 questions
VIDEOS

Center of Mass of an Irregular Object
by Flipping Physics
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AP Physics 1 - Center of Mass
by Mr. Marek
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Intro to Center of Mass
by Patrick Ford
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92 views
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Physics C Review 15: Center of Mass of a Non-Uniform Rod
by Science of Schist
46 views
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Center of Mass
by Bozeman Science
42 views
08:27

AP Physics C - Center of Mass
by Dan Fullerton
51 views
18:18

Center of Mass Physics Problems - Basic Introduction

by The Organic Chemistry Tutor

54 views

13:14

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A hammer can be modeled as a point mass on the end of a long, uniform rod. How far from the head of the hammer is the center of mass?

13 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A mass is at $(0, 0)$, a mass is at $(, 0)$, and a mass is at $(,)$. What are the coordinates of the center of mass?

8 views

Torque & Equilibrium

11 videos | 1 question

VIDEOS

Anderson Video - Balanced Beam

by Professor Anderson

34 views

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Physics, Torque (10 of 13) Static Equilibrium, Hanging Sign at an Angle No. 4

by Step by Step Science

49 views

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Rotational Equilibrium Introduction (and Static Equilibrium too!!)

by Flipping Physics

33 views

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Torque & Equilibrium

by Patrick Ford

3

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Rathkeale Physics - Torque Equilibrium 2

by MRMANNRATHKEALE

33 views

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Torque and Equilibrium – Physics | Lecturio

by Lecturio Medical

31 views

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Solving Torque Problems.wmv

by Fizzgig98

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Physics - Mechanics: Torque (1 of 7) Mass on Rod and Cable

by Michel van Biezen

27 views

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Physics, Torque (3 of 13) Balance Beam

by Step by Step Science

27 views

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Balancing a bar with a force

by Patrick Ford

2

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52 views

06:05

Pin holding a horizontal bar

by Patrick Ford

3

commentsIcon

42 views

02:33

PRACTICE

Open Question

A composite disc is made out of two concentric cylinders, as shown. The inner cylinder has radius 30 cm. The outer cylinder has radius 50 cm. If you pull on a light rope attached to the edge of the outer cylinder (shown left) with 100 N, how hard must you pull on a light rope attached to the edge of the inner cylinder (shown right) so the disc does not spin?

4

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12 views

16. Angular Momentum

Opening/Closing Arms on Rotating Stool

8 videos | 1 question

VIDEOS

A man is sitting on a rotating stool with his arms outstretched. If suddenly

by Doubtnut

26 views

05:29

Spinning Chair

by PhysicsandAstronomy UKY

27 views

02:50

Rotating Chair & Weights - What happens next?

by MonashPhysicsAndAstronomy

32 views

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Holding weights on a spinning stool

by Patrick Ford

39 views

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Angular momentum: rotating stool and wheel

by Steuard Jensen

38 views

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Opening/ Closing Arms on Rotating Stool: Example: Holding weights on a spinning stool

by Clutch Prep

23 views

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Conservation of Angular Momentum: Controlling Angular Velocity on a Rotating Stool

by North Carolina School of Science and Mathematics

31 views

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Angular Momentum on a Rotating Stool

by Physics This Week

27 views

01:00

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You stand on a stool that is free to rotate about an axis perpendicular to itself and through its center. The stool's moment of inertia around its central axis is 1.50 kg m^2 . Suppose you can model your body as a vertical solid cylinder (height = 1.80 m, radius = 20 cm, mass = 80 kg) with two horizontal thin rods as your arms (each: length = 80 cm, mass = 3 kg) that rotate at their ends, about the same axis, as shown. Suppose that your arms' contribution to the total moment of inertia is negligible if you have them pressed against your body, but significant if you have them wide open. If you initially spin at 5 rad/s with your arms against your body, how fast will you spin once you stretch them wide open? (Note: The system has 4 objects (stool + body + 2 arms), but initially only stool + body contribute to its moment of inertia)

31 views

Conservation of Angular Momentum

12 videos | 2 questions

VIDEOS

Anderson Video - Conservation of Angular Momentum

by Professor Anderson

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Anderson Video - Rotational Energy
by Professor Anderson
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Angular Momentum - Clay Puck and Stick Collision
by Physics Ninja
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Conservation of Angular Momentum
by Patrick Ford
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Angular Momentum Demo: Spinning Bottle
by Physics Demos
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Wheel Conservation of Angular Momentum Demonstration and Solution
by Flipping Physics
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8 AWESOME EXAMPLES Conservation of angular momentum!!!
by Physics experiments
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Conservation of Angular Momentum Introduction and Demonstrations
by Flipping Physics

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Conservation of Angular Momentum
by Bozeman Science
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Ice skater closes her arms
by Patrick Ford
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Star collapses
by Patrick Ford
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34 views
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Landing and moving on a disc
by Patrick Ford
5
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32 views
13:39

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a diver spins at 8 rad/s while falling with a moment of inertia about an axis through himself of $3 \text{ kg}\cdot\text{m}^2$. What moment of inertia would the diver need to have to spin at 4 rad/s ?

BONUS:How could he accomplish this?

1

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25 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two astronauts, both 80 kg , are connected in space by a light cable. When they are 10 m apart, they spin about their center of mass with 6 rad/s . Calculate the new angular speed they'll have if

they pull on the rope to reduce their distance to 5 m. You may treat them as point masses, and assume they continue to spin around their center of mass.

36 views

Angular Momentum & Newton's Second Law

8 videos | 1 question

VIDEOS

Inertia - Basic Introduction, Torque, Angular Acceleration, Newton's Second Law, Rotational Motion

by The Organic Chemistry Tutor

15 views

11:58

Particle Dynamics Screencast 26.2: Newton's 2nd Law and Total Angular Momentum about Q
by DrDynamics

18 views

06:54

Particle Dynamics 14.2 - Generalized Angular Momentum Form of Newton's 2nd Law
by DrDynamics

23 views

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Angular Momentum & Newton's Second Law

by Patrick Ford

3

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Torque, Angular Momentum, and Newton's Second Law for Rotations | Doc Physics
by Doc Schuster

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Particle Dynamics Screencast 13.2 - Angular Momentum Form of Newton's 2nd Law

by DrDynamics
35 views
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Ch12 N7 Angular Momentum and Newton's 2nd Law
by Doc D
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Angular Momentum & Newton's Second Law
by Clutch Prep
56 views
05:19

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A solid disc of mass $M = 40 \text{ kg}$ and radius $R = 2 \text{ m}$ is free to rotate about a fixed, frictionless, perpendicular axis through its center. You apply a constant, tangential force on the disc's surface (as shown), to get it to spin. Calculate the magnitude of the force needed to get the disc to 100 rad/s in just one minute.

1

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Intro to Angular Collisions

8 videos

VIDEOS

Rotational Collisions
by Anyone Can Physics
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Collisions with Rotation Lecture Video
by Aaron Shoolroy
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Angular Collision Example

by Erik Rosolowsky
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Intro to Angular Collisions (Two discs)
by Patrick Ford
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PHYS 101 | Rough Angular Momentum 7 - Disk and Bar Collision II
by Physierge
24 views
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Dart with Thin Rod Collision - Conservation of Angular Momentum Demonstration and Problem
by Flipping Physics
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Physics - Mechanics: Angular Momentum (7 of 11) Ex. 6: Bullet Striking Beam
by Michel van Biezen
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Conservation of Angular Momentum: Bullet and Door Collision Problem
by Physics Ninja
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Jumping Into/Out of Moving Disc
8 videos | 1 question
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Merry-Go-Round Physics
by Chad Orzel

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Jumping onto a merry go round (PhysCasts)

by Swinburne Commons

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Conservation of angular momentum a child jumping on a merry go round

by Linda Grabill

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Jumping into a moving disc

by Patrick Ford

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Merry-Go-Round - Conservation of Angular Momentum Problem

by Flipping Physics

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Physics - Mechanics: Angular Momentum (2 of 11) Ex. 1: Sand Bag on Rotating Disk

by Michel van Biezen

40 views

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Physics - Mechanics: Angular Momentum (3 of 11) Ex. 2: Child Jumping on Rotating Disk

by Michel van Biezen

33 views

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Jumping Into/Out of Moving Disc: Example: Jumping into a moving disc

by Clutch Prep

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A 200 kg disc 2 m in radius spins around a perpendicular axis through its center, with a person on it, at 3 rad/s counter-clockwise. The person has mass 70 kg, is at rest (relative to the disc, that is, spins with it) at the disc's edge, and can be treated as a point mass. If the person jumps tangentially out of the disc with 10 m/s (relative to the floor), as shown by the red arrow, what new angular speed will the disc have as a result? If the person steps out into ice with negligible speed of his/her own, what speed would it have upon exiting?

1

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Spinning on String of Variable Length

7 videos | 1 question

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CIRCULAR MOTION: QUARANTINE LAB DATA TAKING

by DocKobryn

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an air puck of mass 0.25kg is tied to a string

by WNY Tutor

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Circular Motion Lab

by Rebecca Thompson

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Spinning on a string of variable length

by Patrick Ford

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Spinning Mass with Variable Radius
by Wolfram Demonstrations Project
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Spinning on String of Variable Length: Example: Spinning on a string of variable length
by Clutch Prep
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Independent Variable: Length of String
by Lucas Staker
23 views
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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A small object (red, m) is on a smooth table top and attached to a light string that runs through a hole in the table. The other end of the string attaches to a hanging weight (green, M). When the small object is given some speed, it spins in a circular path around the hole, with the tension from the hanging weight providing the centripetal force that keeps it spinning. If the object spins with angular speed ω when it is a distance R from the central hole, what new angular speed (in terms of ω) does it have when this distance is halved? What new mass does the hanging weight need, in terms of M , to support a circular path at the new speed?

1

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Angular Collisions with Linear Motion
7 videos | 1 question
VIDEOS

Ball hits rod in space: Physics Solution
by physicsfrac
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Advanced Collisions With Rotation TN
by Patricia Noblett
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OLD R.9 Collisions with Conservation of Angular Momentum

by Thryysics

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Point Particle & Rigid Object Collision - Conservation of Angular Momentum Demonstration & Problem

by Flipping Physics

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Angular Momentum & Rotational Collisions | Live Review Session 7 | AP Physics C: Mechanics
by Advanced Placement

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Intro to Angular Collisions (Two discs)

by Clutch Prep

23 views

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Are Linear and Angular Momentum Conserved during this Collision?

by Flipping Physics

23 views

09:52

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two rotating doors, each 4 kg in mass and 6 m long, are fixed to the same central axis of rotation, as shown above (top view). Suppose a 4 kg bird flying with 30 m/s horizontal collides against the door and stays stuck to it, at a point 50 cm from one end. Calculate the angular speed with which the system (doors + bird) spin together.

1

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Intro to Angular Momentum

12 videos | 2 questions

VIDEOS

Anderson Video - Angular Momentum and Cross Product
by Professor Anderson
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Anderson Video - Spinning Wheel Angular Momentum
by Professor Anderson
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Anderson Video - Angular Momentum Vector
by Professor Anderson
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Intro to Angular Momentum
by Patrick Ford
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Anderson Video - Angular Momentum
by Professor Anderson
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Intro to Angular Momentum
by Clutch Prep
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Physics - Mechanics: Angular Momentum (1 of 11) What is angular momentum? Basics
by Michel van Biezen

43 views
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What Is Angular Momentum?
by The Organic Chemistry Tutor
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Angular Momentum of a Rigid Object with Shape Introduction
by Flipping Physics
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Angular Momentum
by Bozeman Science
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Angular Momentum - Basic Introduction, Torque, Inertia, Conservation of Angular Momentum
by The Organic Chemistry Tutor
20 views
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AP Physics 1 Review of Torque and Angular momentum
by We Are Showboat
29 views
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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

When solid sphere 4 m in diameter spins around its central axis at 120 RPM, it has 1,000 kg m² / s in angular momentum. Calculate the sphere's mass.

37 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A composite disc is built from a solid disc and a concentric, thick-walled hoop, as shown below. The inner disc has mass 4 kg and radius 2 m. The outer disc (thick-walled) has mass 5 kg, inner radius 2 m, and outer radius 3 m. The two discs spin together and complete one revolution every 3 s. Calculate the system's angular momentum about its central axis.

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Angular Momentum of a Point Mass

8 videos | 2 questions

VIDEOS

Angular Momentum and Kinetic Energy for Point Mass and Rigid Objects

by Physics Explained

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AP Physics 1: Rotation 29: Angular Momentum and Angular Momentum of Point Mass

by Yau-Jong Twu

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Angular Momentum of a Point Mass

by Professor Brei

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Angular Momentum of a Point Mass

by Patrick Ford

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Common Point Particle Angular Momentum Triangle

by Flipping Physics

33 views

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Angular momentum of a point mass, Schwartz, Cal Poly Physics

by Peter Schwartz

36 views

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32.1 Angular Momentum for a Point Particle

by MIT OpenCourseWare

20 views

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Angular Momentum of a Point Mass

by Clutch Prep

36 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The Earth has mass 5.97×10^{24} kg, radius 6.37×10^6 m. The Earth-Sun distance is 1.5×10^{11} m. Calculate its angular momentum as it spins around itself. Treat the Earth as a solid sphere of uniform mass distribution. BONUS 1: Treating the Earth as a point mass, calculate its angular momentum as it spins around the Sun. BONUS 2: Does the Earth have linear momentum as it spins around (i) itself; (ii) the Sun?

1

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77 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A system is made of two small, 3 kg masses attached to the ends of a 5 kg, 4 m long, thin rod. The system rotates with 180 RPM about an axis perpendicular to the rod and through one of its ends, as shown. Calculate the system's angular momentum about its axis.

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Angular Momentum of Objects in Linear Motion

8 videos

VIDEOS

Angular Momentum of Linear Motion part 2

by Justin VonMoss

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APC N05B05 Angular momentum and linear motion

by Bernard Lockhart-Gilroy

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Plane Motion of Rigid Bodies: Linear and Angular Momentum Example
by Jamie Turner
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Angular Momentum of Objects in Linear Motion
by Patrick Ford
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Angular Momentum of Linear Motion
by Joe Vaughan
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Angular Momentum of Linear Motion
by Justin VonMoss
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Linearly Moving Objects can have Angular Momentum
by C. Stephen Murray
34 views
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Angular Momentum of Objects in Linear Motion
by Clutch Prep
25 views
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17. Periodic Motion

Spring Force (Hooke's Law)

[Calculus Work Required to Stretch a Spring - Hooke's Law](#)

by Steve Crow

[Spring Force](#)

by Jennifer Cash

[How to find spring force, spring constant or distance stretched \(Hooke's Law\)](#)

by How To Physics

[Hooke's Law Introduction - Force of a Spring](#)

by Flipping Physics

[GCSE Physics - Elasticity, spring constant, and Hooke's Law #44](#)

by Cognito

[Simple Harmonic Motion: Hooke's Law](#)

by Professor Dave Explains

Intro to Simple Harmonic Motion (Horizontal Springs)

[Anderson Video - Simple Harmonic Motion](#)

by Professor Anderson

[Anderson Video - Cosine Solution to Simple Harmonic Motion](#)

by Professor Anderson

[Anderson Video - Period of an Oscillating Spring](#)

by Professor Anderson

[Anderson Video - Graphing Simple Harmonic Motion and Determining Phi](#)

by Professor Anderson

[Anderson Video - Spring Example- Max Speed and Acceleration](#)

by Professor Anderson

[Anderson Video - Speed of a Block on a Spring](#)

by Professor Anderson

[Energy in Horizontal Springs Example](#)

by Clutch Prep

[Physics - Mechanics: Ch 16.5 Simple Harmonic Motion-2 Springs \(1 of 5\) 2 Equal Springs. 1 Mass](#)

by Michel van Biezen

[Simple Harmonic Motion Derivations using Calculus \(Mass-Spring System\)](#)

by Flipping Physics

[How To Solve Simple Harmonic Motion Problems In Physics](#)

by The Organic Chemistry Tutor

[Simple Harmonic Motion: Crash Course Physics #16](#)

by CrashCourse

[Simple Harmonic Motion 2 - Mass on a horizontal spring](#)

by KeysToMaths1

[Simple Harmonic Motion Introduction\(SHM\) via a Horizontal Mass-Spring System](#)

by Flipping Physics

Energy in Simple Harmonic Motion

[Anderson Video - Energy in Simple Harmonic Motion](#)

by Professor Anderson

[Total Mechanical Energy in Simple Harmonic Motion](#)

by Flipping Physics

[Energy in simple harmonic motion](#)

by Cowen Physics

[Energy of Simple Harmonic Oscillators | Doc Physics](#)

by Doc Schuster

[Energy and Simple Harmonic Motion](#)

by Andrey K

[Simple Harmonic Motion \(13 of 16\): Kinetic & Potential Energy. An Explanation](#)

by Step by Step Science

[Energy In a Simple Harmonic Oscillator - Maximum Velocity & Acceleration Calculations](#)

by The Organic Chemistry Tutor

Simple Harmonic Motion of Vertical Springs

[Physics - Mechanics: Ch 16.5 Simple Harmonic Motion-2 Springs \(5 of 5\) 2 Springs in Series, 2 Mass](#)

by Michel van Biezen

[Vertical Springs | Simple Harmonic Motion | AP Physics C](#)

by Physics Burns

[Oscillations Demo: Mass Spring System](#)

by Physics Demos

[Physics - Mechanics: Simple Harmonic Motion \(3 of 5\) Mass on Spring](#)

by Michel van Biezen

Solution to Problem #78, Vertical Spring

[by Lectures by Walter Lewin. They will make you ♥ Physics.](#)

[Simple harmonic motion - vertical spring](#)

by Michael Hazeltine

[Simple Harmonic Motion 3 - Mass on a vertical spring](#)

by KeysToMaths1

Simple Harmonic Motion of Pendulums

[Anderson Video - Pendulum Mechanics](#)

by Professor Anderson

[Anderson Video - The Mysterious Wave Pendulum](#)

by Professor Anderson

[Simple Pendulum - Simple Harmonic Motion Derivation using Calculus](#)

by Flipping Physics

[Simple Harmonic Motion \(2 of 16\): Pendulum, Calculating Period, Frequency, Length and Gravity](#)

by Step by Step Science

[simple harmonic motion - the pendulum](#)

by Pose Problem

[8.01x - Module 15.09 - Simple harmonic motion of pendulum.](#)

by Lectures by Walter Lewin. They will make you ♥ Physics.

[Simple Harmonic Motion \(1 of 16\): Period of a Pendulum](#)

by Step by Step Science

[When is a Pendulum in Simple Harmonic Motion?\(SHM\)](#)

by Flipping Physics

[Simple Pendulum in Harmonic Motion](#)

by Andrey K

Energy in Pendulums

[GCSE Science Revision Physics "Energy Transfers: Pendulum"](#)

by Freesciencelessons

[APPLICATION OF THE LAW OF CONSERVATION OF ENERGY TO A SIMPLE PENDULUM](#)

by 7activestudio

[Mechanical Energy of Swinging Pendulum](#)

by Andrey K

[Kinetic and Potential Energy in a pendulum](#)

by Kevin Swabb

[Kinetic and Potential Energy for Pendulum](#)

by OpenStax

18. Waves & Sound

Intro to Waves

[Intro to Waves](#)

by Jen Solomon

[Wave Motion | Waves | Physics | FuseSchool](#)

by FuseSchool - Global Education

[Intro to Waves](#)

by Cool4Physics

[Wave Basics](#)

by MooMooMath and Science

[Physics - Waves - Introduction](#)

by expertmathstutor

[Introduction to Waves](#)

by Flipping Physics

Wave Functions & Equations of Waves

[Physics - Mechanics: Mechanical Waves \(9 of 21\) The Wave Equation](#)

by Michel van Biezen

[Introduction to Wave Function](#)

by Andrey K

[The Wave Function](#)

by DrPhysicsA

[Physics - Mechanics: Mechanical Waves \(10 of 21\) The Wave Equation in 1-Dimension](#)

by Michel van Biezen

[Periodic Traveling Wave Motion as a Function of x AND t | Doc Physics](#)

by Doc Schuster

[Wave Equation](#)

by Jennifer Cash

[Wave Equation](#)

by Bozeman Science

Velocity of Transverse Waves (Strings)

[Physics - Mechanics: Mechanical Waves \(2 of 21\) Velocity on a String \(Deriving Equation\)](#)

by Michel van Biezen

[16-71 Speed of a transverse wave on a string](#)

by Richard Wong Physics

[Wave motion | derivation for velocity of transverse wave on sting | useful for JEE and NEET](#)

by My physics Teacher

[AP Physics 2: Waves 3: Speed of Transverse Waves in a String](#)

by Yau-Jong Twu

[Transverse Velocity And Acceleration Of A String Element](#)

by DMACC PHYSICS

[16.3 The Speed of a Wave on a String](#)

by Physics Demos

[Velocity of Transverse Wave in Cord](#)

by Andrey K

Wave Interference

[Hewitt-Drew-it! PHYSICS 86. Wave Interference](#)

by Marshall Ellenstein

[The Double-Slit Experiment](#)

by Professor Dave Explains

[Wave Superposition Introduction](#)

by Flipping Physics

[Wave Interference | Arbor Scientific](#)

by Arbor Scientific

[Interference, Reflection, and Diffraction](#)

by Professor Dave Explains

[Wave Interference](#)

by Bozeman Science

[Waves - Interference Phase Angle](#)

by omorganlabs

Standing Waves

[Standing wave harmonics on guitar strings \(and pianos, banjos, and harps, I guess\) | Doc Physics **](#)

by Doc Schuster

[Standing Waves - IB Physics](#)

by Andy Masley's IB Physics Lectures

[Standing Wave Harmonics -- xmdemo 139](#)

by xmdemo

[Standing Waves](#)

by Bozeman Science

[Standing Waves Introduction](#)

by Flipping Physics

[Standing Waves and Harmonics](#)

by Professor Dave Explains

[Standing Wave Demo: Slinky](#)

by Physics Demos

Standing Sound Waves

[16.4 Standing Sound Waves and Modes](#)

by Ken Schenck

Standing Sound Waves

by Geoff Olson

17 views

14:29

Standing wave harmonics in a tube with one closed end (Organ, Saxophone, Tuba) | Doc Physics

by Doc Schuster

34 views

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Standing Sound Waves

by Patrick Ford

5

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62 views

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Sound: Standing Waves and Resonance | Physics in Motion

by GPB Education
24 views
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Physics - Mechanics: Sound and Sound Waves (40 of 47) Standing Waves in an Air Column
by Michel van Biezen
25 views
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Standing Waves In Organ Pipes - Closed & Open Tubes - Physics Problems
by The Organic Chemistry Tutor
31 views
12:07

[Sound as a Standing Wave - IB Physics](#)
[by Andy Masley's IB Physics Lectures](#) **
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Fundamental Frequency of Ear Canal
by Patrick Ford
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25 views
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Third Harmonic for Waves in a Tube
by Patrick Ford
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39 views
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Sound Intensity
2 videos | 4 questions
VIDEOS

Sound Intensity
by Patrick Ford

5

commentsIcon

45 views

07:13

Volume And Intensity Level

by Patrick Ford

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27 views

10:07

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A source emits a sound in the shape of a cone, as shown in the figure below. If you measure the intensity to be 100 W/m^2 at a distance of 0.5 m , what is the power of the source?

2

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30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A source emits sound spherically with a power of $2.2 \times 10^4 \text{ W}$. What is the minimum distance away from this sound that would be considered safe (a volume of 150 dB or less)?

3

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21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose an explosion can just be heard over normal conversation with an intensity of 10^{-10} W/m^2 from 10 km away. At what distance from the explosion will the sound have an intensity that causes pain (10^{-2} W/m^2)? Note that this calculation ignores absorption of sound energy by air and objects.

17 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A speaker at a rock concert is causing you pain, so you reason the sound level must be 130 dB . The speaker is 11 m away from you. To what final distance from the speaker should you move for the sound level to reach a less-painful 105 dB ? Keep in mind that we are ignoring absorption of sound energy by air and objects.

2 views

The Doppler Effect

8 videos | 3 questions

VIDEOS

by Doc Schuster
24 views
14:07

Doppler Effect
by Bozeman Science
30 views
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[Doppler Effect Demonstrations and Animations
by Flipping Physics](#) **
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The Doppler Effect
by Patrick Ford
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Doppler Effect
by Matt Becker
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What Is the Doppler Effect? | Physics in Motion
by GPB Education
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How the Doppler effect works
by Interesting Engineering
25 views
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Two Submarines Approaching One Another

by Patrick Ford

5

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29 views

05:58

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A police siren emits a sound somewhere around 700 Hz. If you are waiting at a red light, and a police car approaches you from behind and passes you, moving at a constant 30 m/s, what is the frequency you hear from the siren as it approaches you from behind? What about once it's passed you? Assume the air temperature to be 20°C.

1

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72 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A police radar gun used to measure the speed of cars emits an electromagnetic wave (a radio wave) with a frequency of f . In an area where the speed limit is v , what should be the shift in the frequency of the wave after reflecting off traffic that is exactly following the speed limit, driving toward the police officer?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

As you stand beside the road singing a lovely note, your friend, Lisa, drives toward you at v . What frequency does Lisa hear as she listens to you croon?

5 views

Beats

8 videos | 1 question

VIDEOS

Physics - Mechanics: Sound and Sound Waves (30 of 47) Beat Frequency

by Michel van Biezen

40 views

03:01

[Sound beats explained](#)

by PhysicsHigh **

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AP Physics 1 - Beats

by Dan Fullerton

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Beats

by Patrick Ford

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Beats in Sound Waves

by 7activestudio

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Demonstrating Beat Frequency - A Video Project by Bo

by Flipping Physics

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Beats Physics

by James Lincoln

18 views

02:27

Beats

by Bozeman Science

13 views

04:50

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A string emits an unknown sound. You strike a tuning fork which emits a sound at EXACTLY 300 Hz, and you hear a beat frequency of 20 Hz. You then tighten the

19. Fluid Mechanics

Density
8 videos | 6 questions
VIDEOS

Density Practice Problems
by Tyler DeWitt
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How To Calculate Density - With Examples
by cleanairfilms
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What is density?
by The Science Classroom
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Intro to Density
by Patrick Ford
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What is Density? - Density Explained
by The Engineering Mindset
36 views
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Density Practice Problems
by The Organic Chemistry Tutor
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Density

by Bozeman Science

30 views

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What is Density? | Gravitation | Physics | Don't Memorise

by Don't Memorise

24 views

02:30

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wooden door is 1 m wide, 2.5 m tall, 6 cm thick, and weighs 400 N. What is the density of the wood in g/cm³? (use $g = 10 \text{ m/s}^2$)

1

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26 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose an 80 kg (176 lb) person has 5.5 L of blood (1,060 kg/m³) in their body. How much of this person's total mass consists of blood? What percentage of the person's total mass is blood?

23 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You want to verify if a 70-g crown is in fact made of pure gold (19.32 g/cm³), so you lower it by a string into a deep bucket of water that is filled to the top. When the crown is completely submerged, you measure that 3.62 mL of water has overflowed. Is the crown made of pure gold?

22 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You have three objects in front of you. Object A has a volume of . object B has a volume of . and object C has a volume of . They all have the same mass. What is the correct ranking of the objects from most dense to least dense?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a cubic box contains so much air at °C that the mass of the air inside is equal to the mass of of water. What would be the side length of such a box?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Different materials in the body have different densities, and therefore will tend to make a person float or sink to different extents. Which bodily material is most buoyant (helps you stay afloat the most)?

3 views

Intro to Pressure

15 videos | 7 questions

VIDEOS

Anderson Video - Pressure Under Water

by Professor Anderson

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Anderson Video - Diving to a Pressure of Two Atmospheres

by Professor Anderson

31 views

03:01

Anderson Video - Longest Straw Superman can Drink Through

by Professor Anderson

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A large warehouse is 100 m wide, 100 m deep, 10 m high:

a) What is the total weight of the air inside the warehouse?

b) How much pressure does the weight of the air apply on the floor?

1

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30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The deepest known point on Earth is called the Mariana Trench, at ~11,000 m (~36,000 ft). If the surface area of the average human ear is 20 cm², how much average force would be exerted on your ear at that depth?

36 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A tall cylindrical beaker 10 cm in radius is placed on a picnic table outside. You pour 5 L of an 8,000 kg/m³ liquid and 10 L of a 6,000 kg/m³ liquid into. Calculate the total pressure at the bottom of the beaker. (Use $g=10 \text{ m/s}^2$.)

1

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33 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wooden cube, 1 m on all sides and having density 800 kg/m³, is held under water in a large container by a string, as shown below. The top of the cube is exactly 2 m below the water line.

Calculate the difference between the force applied by water to the top and to the bottom faces of the cube (Hint: calculate the two forces, then subtract. Use $g=10 \text{ m/s}^2$.)

3

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23 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

At point A, a hose ejects water at a speed of . Point B is upstream from, and 30.0 cm above, the outlet. If the water is moving at at point B, what is the internal pressure of the water at B? Use for atmospheric pressure and for the density of water.

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The pressure gradient in a pipe carrying water is . What pressure gradient would be required to maintain the same flow rate in the same pipe if it were carrying olive oil? Treat the flow as the flow of a viscous fluid. The viscosity of water is and the viscosity of olive oil is .

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose the average speed of blood in the aorta is , and the diameter is 2.0 cm. What is the pressure gradient in this aorta due to the viscosity of blood (assume a human body temperature)?

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A classic barometer (shown below) is built with a 1.0-m tall glass tube and filled with mercury ($13,600 \text{ kg/m}^3$). Calculate the atmospheric pressure, in ATM, surrounding the barometer if the column of liquid is 76 cm high. (Use $g=9.8 \text{ m/s}^2$.)

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A classic manometer (as shown below) has one of its ends open, and a 2 atm gas on the other. When mercury ($13,600 \text{ kg/m}^3$) is added to the manometer, you measure the top of the mercury column on the left to be 40 cm higher than the mercury column on the right. Calculate the atmospheric pressure that the manometer is exposed to, in units of atm. (Use $g=9.8 \text{ m/s}^2$.)

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Pressure Gauge: U-shaped Tube

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Water and oil are poured into a u-shape tube, as shown below. The column of oil, on the right side, is 25 cm tall, and the distance between the top of the two columns is 9 cm. Calculate the density of the oil.

27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A U-shaped tube open at both ends is initially partly filled with oil. Then a different liquid is poured into the left side. The height of the column of mystery fluid is h . If the fluid level on the left is lower than on the right by a distance of d , what fluid was poured into the left side?

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Buoyancy & Buoyant Force

15 videos | 5 questions

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
When an object of unknown mass and volume is fully immersed in large oil (800 kg/m^3) container and released from rest, it stays at rest. Calculate the density of this object.
34 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
A block floats with 40% of its volume above water. When you place it on an unknown liquid, it floats with 30% of its volume above. What is the density of the unknown liquid?
31 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An $8,000 \text{ cm}^3$ block of wood is fully immersed in a deep water tank, then tied to the bottom. When the block is released and reaches equilibrium, you measure the tension on the string to be 12 N. What is the density of the wood?

1

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You want to build a large storage container, with outer walls and an open top, as shown, so that you can load things into it, while it floats on fresh water, without any water getting inside. If the bottom face of the container measures 3.0 m by 8.0 m, how high should the side walls be, such that the combined mass of container and inside load is 100,000 kg?

26 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a certain type of wood has a density of ρ . If a block of wood L long, W wide, and H high were placed into a pool of water, how high would be the portion of the block above water?

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A cylindrical pipe with inner diameter of 4 cm is used to fill up a 10,000 L tank with a 700 kg/m^3 oil. If it takes one hour to fill up the tank, calculate the speed, in m/s, with which the oil travels inside of the pipe.

35 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two hoses have been connected together. The first hose has a diameter of 4 cm, and the second has a diameter of . If the water exits the narrower hose at a speed of , how quickly is the water moving inside the wider hose?

4 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A blood vessel has a radius of . This blood vessel divides into two, each having a radius of . If the speed of the blood just before the split is , what is the speed of blood just after the split?

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Temperature

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The tungsten filaments inside of most incandescent lightbulbs reach temperatures of about 4580°F when the lightbulbs are lit. What is this temperature in a) Celsius and b) Kelvin?

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Linear Thermal Expansion

9 videos | 2 questions

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

On a very cold day at a temperature of -12°C , a power line made of aluminum between two support towers measures exactly 150.56m. You go out on a hot day and measure the power line to be exactly 150.71m. What is the temperature (in $^{\circ}\text{C}$) outside? The linear expansion coefficient of aluminum is 2.4×10^{-5} .

19 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An aluminum rod is exactly long on a day when the temperature was . How long is the rod on a day when it is only ? Use for the coefficient of linear expansion for aluminum.

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Volume Thermal Expansion

10 videos | 1 question

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If a block of aluminum has a volume of exactly V_1 at T_1 , what is its volume at T_2 ? The coefficient of linear expansion for aluminum is α .

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If the molar mass of hydrogen is 1.008 g/mol, what is the mass (in grams) of 2 hydrogen atoms?

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How many moles are in a block of lead?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A rigid container has a volume of . It contains a ideal gas at . How many moles are in the container?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

0.0076 moles of an ideal gas is at . If it is a sealed container with a volume of 86 cm³, what is the pressure of the gas?

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You are given a sample of an unknown metal. You weigh the sample and find that its weight is 29.4N. You add 1.25×10^4 J of heat energy to the sample and find that its temperature increases from 52°C to 70°C . What is the specific heat of this unknown metal?

19 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

of heat energy are added to a block of copper that is initially at . What is the final temperature of the copper? The specific heat capacity of copper is .

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How much heat must be removed from 0.7 kg of water at 23°C to cool it to 0°C and completely freeze it?

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How much heat is needed to change of liquid water at into steam at ?

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A cubic Styrofoam cooler containing ice on a hot day is shown in the following figure. The thickness of each wall of the cooler is 15 mm, with a side length of 1 m. If it is 40°C outside, how long will 2 kg of ice last in the cooler? Assume that during the melting process, the temperature inside the cooler remains at 0°C and that no heat enters from the bottom of the cooler. Note that the latent heat of fusion for water is 334 kJ/kg and the thermal conductivity of Styrofoam is 0.033 W/mK.

2

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Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

If the intensity of sunlight measured at the Earth's surface is 1400 W/m², what is the surface temperature of the Sun? Treat the Sun like a true blackbody. Note that the distance from the Earth to the Sun is 1.5×10^{11} m and the radius of the Sun is 696 million meters.

1

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Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

of work are done on a gas in a process which decreases the thermal energy by . How much heat energy is transferred to or from the system?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

300 g of water at is in an insulated cup. What mass of copper at must be added to heat the water to ?

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21. Kinetic Theory of Ideal Gases

The Ideal Gas Law

10 videos | 6 questions

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Doubling Pressure & Temperature

by Patrick Ford

30 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

3 moles of an ideal gas fill a cubical box with a side length of 30cm. If the temperature of the gas is 20°C, what is the pressure inside the container?

18 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Hydrogen gas behaves very much like an ideal gas. If you have a sample of Hydrogen gas with a volume of 1000 cm³ at 30°C with a pressure of 1×10^5 Pa, calculate how many hydrogen atoms (particles) there are in the sample.

35 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A balloon contains 3900cm³ of a gas at a pressure of 101 kPa and a temperature of –9°C. If the balloon is warmed such that the temperature rises to 28°C, what volume will the gas occupy?

Assume the pressure remains constant.

21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A sample of gas is heated in a closed container with a volume of from an initial temperature and pressure of and to a final temperature of . What is the final pressure?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An ideal gas is in a sealed container. It has a temperature T when it has volume V at pressure P. What is the temperature of the gas when its volume is quadrupled, and the pressure is halved?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

0.00086 moles of an ideal gas undergoes the process shown in the figure. If the initial temperature was and the final pressure is , what is the final temperature?

6 views

Kinetic-Molecular Theory of Gases

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Average Kinetic Energy of Gases

9 videos | 1 question

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Gas in a Balloon

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03:40

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In a sample of gas, you pick a particle at random. The mass of the particle is 1.67×10^{-27} kg and you measure its speed to be 1600 m/s. If that particle's kinetic energy is equal to the average kinetic energy of the gas particles, what is the temperature of the sample of gas?

20 views

Internal Energy of Gases

9 videos | 1 question

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internal energy

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7 18 What is the internal energy of an ideal gas?

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34 views

10:04

Total Internal Energy

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59 views

04:54

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A container filled with 2 mol of an ideal, monoatomic gas is has a total internal energy equal to the kinetic energy of a 0.008kg bullet travelling at 700 m/s. What is the temperature of the gas in Kelvin?

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Root-Mean-Square Velocity of Gases

9 videos | 1 question

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Root-Mean-Square Speed of Ideal Gases

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Average Kinetic Energy of a Gas and Root Mean Square Velocity Practice Problems -
Chemistry Gas Laws
by The Organic Chemistry Tutor
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Average Kinetic Energy and Root Mean Square Velocity
by Andrey K
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Finding Pressure from RMS Speed
by Patrick Ford
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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the temperature of a sample of CO₂ molecules whose rms speed is 300 m/s? The molecular mass for Carbon and Oxygen is 12.01 g/mol and 16 g/mol, respectively.

21 views

Mean Free Path of Gases

9 videos | 1 question

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Mean Free Path, Mean Free Time, & Root Mean Square Velocity Formula Chemistry & Physics
Problems
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Chemical Kinetics 1.4 - Mean Free Path
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6.9 Mean Free Path, Diffusion, & Effusion of Gases

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Example: Calculating the mean free path through air

by Sean O'Neill

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Mean Free Path, Diffusion, and Effusion of Gases

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Laboratory environments can achieve pressures of 3.5×10^{-13} atm and temperatures of 300K. Calculate the mean free path (in km) of air molecules, which you can assume are diatomic.

11 views

Speed Distribution of Ideal Gases

9 videos | 1 question

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by Mike Richardson

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Ideal Gas, Ideal Gas Law, Distribution of Speeds

by Greg Clements

27 views

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Probability Distribution Graph

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The escape velocity from the Earth is approximately 11.2 km/s. If the mass of helium atoms is 6.64×10^{-27} kg, at what temperature would the average speed of helium atoms be equal to the escape velocity?

29 views

22. The First Law of Thermodynamics

Heat Equations for Special Processes & Molar Specific Heats

9 videos | 1 question

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Molar Specific Heat for Constant Volume and Constant Pressure

by Andrey K

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Molar Heat Capacities of Gases, Equipartition of Energy & Degrees of Freedom

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Calculating Temperature Changes

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How much heat energy is needed to increase the temperature of 5 mol of an ideal diatomic gas by from 273K to 300K if the a) pressure is held constant; b) the volume is held constant?

24 views

First Law of Thermodynamics

9 videos | 3 questions

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Alternate Equation of the First Law of Thermodynamics

by Patrick Ford

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Calculating Work Done on Monoatomic Gas

by Patrick Ford

70 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A gas in a cylinder expands from a volume of 0.10 m^3 to 0.320 m^3 . Heat flows into the gas just rapidly enough to keep the pressure constant at $1.65 \times 10^5 \text{ Pa}$ during the expansion. The total heat added is $1.15 \times 10^5 \text{ J}$. What is the change in internal energy of the gas?

32 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A gas in a cylinder held at a constant pressure $1.80 \times 10^5 \text{ Pa}$ expands from a volume of 1.2 m^3 to 1.6 m^3 . The internal energy of the gas decreases from $4.40 \times 10^5 \text{ J}$ to $3 \times 10^5 \text{ J}$. How much heat was transferred to the gas?

27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The internal energy of a system decreases by 500 J , and 230 J of work is done on the system. What is the heat transfer into or out of this system?

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Work Done Through Multiple Processes

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

How much work is done on a gas that expands from A to B along the path shown below?

1

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19 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A gas with an initial volume of 0.2 m^3 is heated at constant volume, and the pressure increases from $2 \times 10^5 \text{ Pa}$ to 5×10^5 . Then, it compresses at constant pressure until it reaches a final volume of 0.12 m^3 . Draw the two processes in the PV diagram below and find the total work done by the gas.

17 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

How much work is done on the gas in the process shown in the figure? Let p_1 , p_2 , and p_3 .

11 views

Cyclic Thermodynamic Processes

3 videos | 1 question

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14 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

An ideal gas is taken through the four processes shown below. The changes in internal energy for three of these processes are as follows: $\Delta E_{AB} = +82 \text{ J}$; $\Delta E_{BC} = +15 \text{ J}$; $\Delta E_{DA} = -56 \text{ J}$. Find the change in internal energy for the process from C to D.

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23. The Second Law of Thermodynamics

Heat Engines and the Second Law of Thermodynamics

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An aircraft engine takes in 9 kJ of heat and expels 6.4 kJ of heat each cycle. How much mechanical work does the engine do each cycle?

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A heat engine uses a tank of ice water as a cold reservoir. The engine takes in 8 kJ of heat from the hot reservoir, and the heat expelled melts 18g of ice in the tank. How much work does this engine do?

35 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A steam turbine takes in 75g of water and boils it as heat energy to run a 40% efficient engine. How much work does this engine do per cycle?

23 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A heat engine exhausts per cycle while doing of work. What is the efficiency of this engine?

13 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In each cycle, a heat engine absorbs from a 400°C hot reservoir, emits to 80°C cold reservoir, while doing of work. Is it physically possible for this engine to exist?

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In each cycle, a heat engine absorbs from a 400°C hot reservoir, emits to 80°C cold reservoir, while doing of work. Is it physically possible for this engine to exist?

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Your car's engine can be modeled as a heat engine. How many joules must be extracted from your gas tank to get your car to 26 m/s? Assume the thermal efficiency of your car is 16%. Ignore air resistance and other frictional effects on your car.

2 views

Heat Engines & PV Diagrams

9 videos | 2 questions

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PHYS 40B: Heat Engines and Refrigerators

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Heat Engines & Efficiency

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Physics. Thermodynamics. Efficiency of the heat engine

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PV diagrams and heat engines

by Rod

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The cycle in the figure shows four processes. Process a is an isobaric expansion at P_1 . Process b is a constant volume reduction in pressure to P_2 . Process c returns the gas to its original state where the volume is V_1 . If the gas does W of work each cycle, what is the maximum volume of the gas?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The figure shows the cycle of a heat engine that uses a diatomic gas. The temperature at point 1 is T_1 . What is the thermal efficiency of the engine?

3 views

The Otto Cycle

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The Carnot Cycle

9 videos | 5 questions

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A theoretical heat engine in space could operate between the Sun's 5500°C surface and the -270.3°C temperature of intergalactic space. What would be its maximum theoretical efficiency?

36 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A Carnot engine with an efficiency of 70% is cooled by water at 10°C . What temperature must the hot reservoir be maintained at?

43 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Your friend claims they have a design for a reversible heat engine that can operate between the freezing and boiling temperatures of water that has an efficiency of 30%. Is this possible?

27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the Carnot efficiency of a heat engine operating between a hot reservoir at 300°C and a cold reservoir at 10°C ?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the hot reservoir temperature of a Carnot heat engine that does work each cycle while expelling to a cold reservoir?

Refrigerators

10 videos | 3 questions

VIDEOS

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Thermodynamics - 6-4 Refrigerators and Heat Pumps - notes

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Mechanical Engineering Thermodynamics - Lec 6, pt 4 of 4: Refrigerators and Heat Pumps
by Ron Hugo
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Refrigerators
by Patrick Ford
30 views
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Anti-Heat Engines: Refrigerators, Air Conditioners, and Heat Pumps | Doc Physics
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How long to freeze water?
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Heat Pumps

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23 views

06:15

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A refrigerator has a coefficient of performance of 2.4. Each cycle, it takes in 3×10^4 J of heat from the cold reservoir. How much is expelled to the hot reservoir?

21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Freezing a kilogram of water, initially at 20°C , requires your refrigerator to remove about of thermal energy from the water. If the coefficient of performance of your refrigerator is 5.0, how much heat is exhausted into your kitchen when you freeze a kilogram of water?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the maximum possible coefficient of performance for a refrigerator operating between 2.0°C (a typical refrigerator temperature) and 20°C (a typical kitchen temperature)?

1 views

Entropy and the Second Law of Thermodynamics

11 videos | 3 questions

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Calculating Entropy Changes for Systems of Objects

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Entropy of Carnot Engine

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

3 moles of an ideal gas are compressed isothermally at 20°C . During this compression, 1850 J of work is done on the gas. What is the change of entropy of the gas?

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You have a block of ice at 0°C . Heat is added to the ice, causing an increase in entropy of 120J/K. How much ice melts into water in this process?

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A non-Carnot heat engine operates between a hot reservoir at 610K and a cold reservoir at 320K. In a cycle, it takes in 6400 J of heat and does 2200 J of work. What is the total change in entropy of the universe over the cycle?

17 views

Entropy Equations for Special Processes

10 videos | 1 question

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Entropy of Expansion | Physical Chemistry I | 043

by Professor Derricotte

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Intro to Entropy- derivation from irreversible/reversible processes
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Change in Entropy of an Isothermal Process
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Entropy & Calorimetry
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Entropy & Ideal Gas Processes
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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

3 moles of an ideal gas are in the left side of an hourglass-shaped container, separated by a thin barrier. The right side is completely empty, but the volume of the left and right sides are

equal. The barrier is suddenly removed, and the gas freely expands into the vacuum. What is the change in entropy?

1

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Statistical Interpretation of Entropy

1 video | 1 question

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Microstates and Macrostates of a System

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The macrostate of a set of coins is given by the number of coins that are heads-up. If you have 100 coins, initially with 20 heads-up, what is Δ ? when the system is changed to have 50 heads-up? Note that the multiplicity of k coins which are heads-up, out of N total coins, is $\Omega = \frac{N!}{k!(N-k)!}$. Does this change in macrostate satisfy the second law of thermodynamics?

17 views

24. Electric Force & Field; Gauss' Law

Electric Charge

12 videos | 4 questions

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Charge of Atom
by Patrick Ford
3
rankIcon
54 views
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Electrons In Water (Using Density)
by Patrick Ford
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PRACTICE
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
How many electrons make up $-1.5 \times 10^{-5} \text{ C}$?
6

commentsIcon
59 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
How many electrons do you have to add to decrease the charge of an object by $16 \mu\text{C}$?
2
commentsIcon
45 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
A glass rod is rubbed with silk, and a plastic rod is rubbed with wool. Afterward, to which object or objects will the glass rod be attracted?

9 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
A ring of charge lies in the xy-plane with its center at the origin. The ring has a radius of 87 cm and a total charge of μ . What is the linear charge density on the ring?

9 views
Charging Objects
8 videos | 1 question

VIDEOS

Charging Objects
by Dr. Caine
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Charging Objects and Conservation of Electric Charge 8
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Static Electricity and Charging Objects
by M. Kreamer
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Charging Objects
by Patrick Ford
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6
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CHARGING PROCESS | STATIC ELECTRICITY | FRICTION CONDUCTION INDUCTION
by Science is Fun
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Charging by Conduction and Induction
by Flipping Physics
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Methods of Charging

by NunezPhysics

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Three Ways to Charge Objects

by Aaron Fay

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A certain electroscope is charged until it holds of negative charge. Have electrons been added to the electroscope, or removed from it, and how many?

9 views

Charging By Induction

7 videos | 1 question

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Minute Physics- Charging by Induction and Conduction

by Dalia Nevarez

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CHARGING BY INDUCTION

by 7activestudio

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Charging By Induction

by Patrick Ford

4

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6

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Electrostatic Induction

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Charging By Induction

by The Physics Classroom

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Charging by Induction

by TutorVista

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DEMO: Charging by Induction

by Physierge

20 views

02:10

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two metal spheres (A and B) are connected by a conducting wire. A positively charged rod is brought close to sphere A but is not touching sphere A. Sphere B is farther away. With the rod still close, the wire between spheres is disconnected, and the rod is then removed. The rod never touched either sphere. What is true about the charge on the two spheres?

8 views

Conservation of Charge

8 videos

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Electrostatics 1 - Conservation of Charge 1

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Conservation of Charge - showmethephysics.com

by Mr. Mangiacapre
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Electric Charge and Law of Conservation of Charge
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Conservation of Charge
by Patrick Ford
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Conservation of Electric Charge
by Bozeman Science
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Conservation of Charge Example Problems
by Flipping Physics
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Charge is Conserved
by OpenStax
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Conservation of Charge and Charge Sharing
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Coulomb's Law (Electric Force)

17 videos | 7 questions

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Anderson Video - Coulomb's Law Example with Two Charges
by Professor Anderson

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Anderson Video - Coulomb's Law Example with Three Charges
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Coulomb's Law
by Patrick Ford

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4

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Anderson Video - Hydrogen Atom
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Coulomb's Law (with example)
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Electric Charge and Electric Fields

by Professor Dave Explains

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Coulomb's Law (2 of 7) Calculate the Force Between Two Charges

by Step by Step Science

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Coulomb's Law (1 of 7) An Explanation

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Coulomb's Law Problems

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Coulomb's law

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Charges In A Line (Find Zero Force)

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Charges In A Triangle (Rank Force Pairs)

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Charges in a Plane

by Patrick Ford

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Exploiting Symmetry

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Electroscope (Find Charge)

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3

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1

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80 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

If the force between two charges is F when the distance is d , what will the force between the two charges be if they were moved to a distance of $2d$?

3

commentsIcon

66 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

In which direction will the -1 C charge move? If it has a mass of 10 g , what will its initial acceleration be?

5

commentsIcon

59 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

What is the direction of the net force on the charge at the center of the square in the following figure?

4

commentsIcon

91 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

What is the distance between a charge and a charge if the magnitude of the force between them is ?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

There is a charge at the origin. A charge is on the x-axis at . A charge is on the y-axis at . What is the total force on the charge at the origin? Give your answer as a magnitude and an angle counterclockwise from the positive x-axis.

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

What is the relationship between the gravitational force between two electrons, . and the electric force between two electrons, ?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A charge is at the origin, a charge is at . Where, on the x-axis, could you place a charge so that it would experience no net force?

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Electric Field

17 videos | 5 questions

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Intro to Electric Fields
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Anderson Video - Electric Field Example with Four Charges
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Anderson Video - Electric Field from Two Charges
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Electric Field
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Electric Field (2 of 3) Calculating the Magnitude and Direction of the Electric Field

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Electric Field Strength
by Bozeman Science
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Candle Flame in an Electric Field
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What is an Electric Field? (Physics - Electricity)
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Physics 36 The Electric Field (4 of 18)
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Electric Field due to a Point Charge
by Patrick Ford
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2
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Zero Electric Field due to Two Charges

by Patrick Ford

5

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1

rankIcon

117 views

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Electric Field Above Two Charges (Triangle)

by Patrick Ford

4

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1

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66 views

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Balancing a Pendulum in Electric Field

by Patrick Ford

2

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2

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49 views

05:23

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A $1.5\mu\text{C}$ charge, with a mass of 50g, is in the presence of an electric field that perfectly balances its gravity. What magnitude does the electric field need to be, and in what direction does it need to point?

5

commentsIcon

56 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If two equal charges are separated by some distance, they form an electric dipole. Find the electric field at the center of an electric dipole, given by the point P in the following figure, formed by a 1C and a -1C charge separated by 1 cm.

5

commentsIcon

64 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

4 charges are arranged as shown in the following figure. Find the magnitude of the electric field at the center of the arrangement, indicated by the point P.

8

commentsIcon

74 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In the following figure, a mass m is balanced such that its tether is perfectly horizontal. If the mass is m and the angle of the electric field is θ , what is the magnitude of the electric field, E ?

1

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31 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A plastic bead is given a charge of q by rubbing. What magnitude and direction of electric field is necessary to levitate the bead?

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Electric Fields in Capacitors

8 videos | 3 questions

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Electrical Engineering: Ch 6: Capacitors (2 of 26) Capacitor with Dielectric

by Michel van Biezen

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Energy Stored on a Capacitor and Energy Density in an Electric Field

by Electric and Magnetic Fields

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Electric Field Between the Plates of a Capacitor

by Greg Clements

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Finding the Electric Field in a Parallel Plate Capacitor

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Parallel plate capacitor (⚡ 3d animation) , Physics , Class 12

by The Visual Learning

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Dielectrics & Capacitors - Capacitance, Voltage & Electric Field - Physics Problems

by The Organic Chemistry Tutor

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Electric Field of Parallel Plates

by Bozeman Science

24 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An electron moves into a capacitor at an initial speed of 150 m/s. If the electron enters exactly halfway between the plates, how far will the electron move horizontally before it strikes one of the plates? Which plate will it strike?

8

commentsIcon

51 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Each plate in a parallel-plate capacitor has an area of . and the separation between plates is . The magnitude of the charge on each plate is . What is the magnitude of the electric field between the plates and inside the metal of the plates?

15 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A water molecule is a dipole. If water were placed in the uniform field between capacitor plates, which of the following would best describe the force and torque experienced by the water molecules?

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Electric Field Lines

10 videos | 1 question

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How to Draw Electric Field Lines and What They Mean | Doc Physics

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Electric Field Lines

by Patrick Ford

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Physics 12.3.4b - Electric Field Lines

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Electric Field Lines
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Electric Field Lines
by The Physics Classroom
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Physics 12.3.4a - Electric Field Lines
by Derek Owens
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Field Lines of Electric Quadrupole
by Patrick Ford
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PRACTICE
Open Question
Draw the field lines for a pair of identical, positive charges.
1
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Dipole Moment
9 videos
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Electric Dipole Moment Example # 1

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A dipole in an electric field

by UNSW Physics

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ELECTRIC DIPOLE

by 7activestudio

10 views

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Intro To Dipole Moment

by Patrick Ford

5

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Physics 36 Electric Field (15 of 18) The Electric Dipole

by Michel van Biezen

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13:20

What is electric dipole and dipole moment?

by The Science Cube

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16:22

Simple Lesson on Electric Dipole Moment and Torque of Dipole Moment in Electric Field

by Author Jonathan David

33 views

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Electric Dipole and Electric Dipole Moment

by Andrey K

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13:29

Energy & Torque of Dipole Moments

by Patrick Ford

3

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37 views

05:19

Electric Fields in Conductors

10 videos

VIDEOS

Anderson Video - Electric Fields in Metals

by Professor Anderson

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09:41

Anderson Video - Metals in Electrostatic Equilibrium

by Professor Anderson

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07:03

Electric Fields - Conductors

by Unstable Seagull

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Electric Fields in Conductors

by Patrick Ford

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Conductors and Electric Fields

by RamseyPhysics

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Why is the Electric Field Inside a conductor Zero?

by PhysicsOH

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Gauss Law Problems, Hollow Charged Spherical Conductor With Cavity, Electric Field, Physics

by The Organic Chemistry Tutor

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Conductors in Electrostatic Equilibrium | Rules for Electric Fields | Doc Physics

by Doc Schuster

22 views

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Electric Fields and Conductors

by z physics

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PHYS102 | Conductors 1- Field Inside a Conductor

by Physierge

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Electric Flux

10 videos | 7 questions

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Electric flux closed surface part 1

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Electric Flux (part 1)

by lasseviren1

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Electric Flux

by Patrick Ford

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Physics - E&M: Ch 36.1 The Electric Field Understood (2 of 17) What is Electric Flux?

by Michel van Biezen

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Electric flux

by NEB Physics

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Electric Flux, Gauss's Law & Electric Fields, Through a Cube, Sphere, & Disk, Physics Problems

by The Organic Chemistry Tutor

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Flux Through Angled Surface

by Patrick Ford

3

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56 views

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Flux Through Cube

by Patrick Ford

4

commentsIcon

1

rankIcon

53 views

03:46

Flux Through Spherical Shell due to Point Charge

by Patrick Ford

2

commentsIcon

1

rankIcon

74 views

03:01

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The electric flux through each surface of a cube is given below. Which surfaces of the cube does the electric field run parallel to? $\Phi_1 = 100 \text{ Nm}^2/\text{C}$ $\Phi_4 = 0 \text{ Nm}^2/\text{C}$

$\Phi_2 = 20 \text{ Nm}^2/\text{C}$ $\Phi_5 = -40 \text{ Nm}^2/\text{C}$

$\Phi_3 = 0 \text{ Nm}^2/\text{C}$ $\Phi_6 = -80 \text{ Nm}^2/\text{C}$

3

commentsIcon

70 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Where does the normal vector point for a spherical shell?

1

commentsIcon

48 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the total flux through the two surfaces depicted in the following figure? Note that surface 1 has an area of 50 cm^2 and surface 2 has an area of 100 cm^2 , and $E = 500 \text{ N/C}$.

2

commentsIcon

38 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A uniform electric field points in the positive x direction and has a magnitude of . What is the total flux through a rectangle with height and width ? The rectangle lies in the y-z plane.

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A uniform electric field points in the positive x direction and has a magnitude of . What is the net flux through a cube with sides ? The cube has one corner on the origin and the positive x, y, and z axes form three of its edges.

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A cube has sides of . Inside the cube is a and a charge. What is the net flux through the cube?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A rectangle lies in the x-y plane; let the normal vector point in the z direction. What is the flux through the rectangle of a uniform electric field

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Gauss' Law

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Using Gauss's Law to Calculate the Electric Flux and Charge in a Rectangular Prism
by Physics Ninja
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Gauss's Law Problems - Conducting Sphere, Spherical Conductor, Electric Flux & Field,
Physics
by The Organic Chemistry Tutor
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Physics 37.1 Gauss's Law Understood (2 of 29) What is Electric Flux?
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Gauss Law Cylinder, Infinite Line of Charge, Electric Flux & Field, Physics Problems
by The Organic Chemistry Tutor
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Flux and Gauss Law
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Electric Field Within Spherical Conductor

by Patrick Ford

2

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Electric Field due to Hollow Shell

by Patrick Ford

5

commentsIcon

1

rankIcon

58 views

07:56

Surface Charge Density

by Patrick Ford

1

commentsIcon

1

rankIcon

112 views

04:03

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Rank the flux through surfaces A, B and C in the figure below from greatest to smallest.

1

commentsIcon

37 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A spherical, conducting shell has a charge of $-6C$. If a $4C$ charge were placed at the center of the shell, what is the electric field at 4 cm? At 12 cm?

6

commentsIcon

47 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A cube has sides equal to . The net flux through the cube is outward. Is the net charge in the cube positive, negative or zero?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

An electric field with strength exists just

25. Electric Potential

Electric Potential Energy

4 videos | 4 questions

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Potential Energy due to Point Charges

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42 views

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Electric Potential Energy

by The Organic Chemistry Tutor

1

rankIcon

34 views

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Physics 12.4.1a - Electric Potential and Potential Difference

by Derek Owens

40 views

08:09

Electric Potential Energy

by Patrick Ford

2

commentsIcon

5

rankIcon

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07:51

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the electric potential energy of the charges shown in the figure?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An electron is in between charged capacitor plates. It is moved from a position near the positive plate to a position near the negative plate. What is true about the change in the potential and the change in the potential energy?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

At one location in space the potential energy of a 10 nC charge is . If the 10 nC charge was replaced with 20 nC charge at the same location, what would be the electrical potential energy of the 20 nC charge?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the electrical potential energy of the charges shown in the figure?

3 views

Electric Potential

10 videos | 7 questions

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by Professor Anderson

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Anderson Video - Electric Potential Units

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Physics - E&M: Ch 38.1 Voltage Potential Understood (9 of 24) Potential Due to Multiple Charges%%%

by Michel van Biezen

28 views

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Electric Potential

by Patrick Ford

3

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2

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Finding the Electric Potential due to Two Point Charges

by Physics Explained

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Electric Potential

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What is an Electric Potential ?

by Physics Made Easy

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Movement of Charges in Potential Fields

by Patrick Ford

4

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2

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73 views

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Potential Due To Point Charges

by Patrick Ford

3

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84 views

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Potential Difference Between Two Charges

by Patrick Ford

6

commentsIcon

4

rankIcon

62 views

07:04

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How far from a $5\mu\text{C}$ charge will the potential be 100 V?

38 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A $-1\mu\text{C}$ and a $5\mu\text{C}$ charge lie on a line, separated by 5cm. What is the electric potential halfway between the two charges?

6

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42 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the electric potential 3.0 cm away from a point charge?

4 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A charge sits at the origin, and a charge is at . At what location(s) is the potential zero?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A uniform electric field with strength points from point A to point B, which are on the x-axis: and . What is the potential difference ?

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A spherical balloon is charged so that the potential on its surface is . The balloon is now deflated to half its original radius (with no loss of charge). What is the new potential on its surface?

14 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Metal sphere A is charged until it has a potential of . Metal sphere B is initially uncharged, and has a radius twice the radius of sphere A. A small wire is used to connect spheres A and B, so that they form one continuous equipotential surface. What is the final potential on the surface of sphere B?

3 views

Work From Electric Force

6 videos | 4 questions

VIDEOS

Work by the Electric Field

by Daniel M

1

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[Electric Potential Energy and Potential Difference](#)

by Daniel M **

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8.02x - Lect 4 - Electrostatic Potential, Electric Energy, Equipotential Surfaces

by Lectures by Walter Lewin. They will make you ♥ Physics.

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Work due to Electric Force

by Patrick Ford

8

commentsIcon

2

rankIcon

74 views

13:39

Work to Bring Two Charges From Infinity

by Patrick Ford

3

commentsIcon

1

rankIcon

69 views

04:39

Speed of Electron in Electric Field

by Patrick Ford

1

commentsIcon

2

rankIcon

50 views

05:32

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An electron moves from point A to point B. The potential difference between these two points is 100 V. What is a. the point of higher potential?

b. the work done on the electron?

c. the final speed of the electron if its initial speed is zero?

5

commentsIcon

64 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What work is needed to assemble an equilateral triangle of side length 5 cm, with a $5\mu\text{C}$ charge at each vertex?

2

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Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the speed of a proton that has been accelerated through ?

4 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

How much work does a battery do when it moves from the negative terminal to the positive terminal?

4 views

Relationships Between Force, Field, Energy, Potential

10 videos | 7 questions

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by Professor Anderson

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Anderson Video - Electric Potential with Four Charges

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Anderson Video - Spark Plug
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Relationships Between Force, Field, Energy, Potential
by Patrick Ford
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2.4.1 The Work Done in Moving a Charge
by Real Physics
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Electric Potential Energy
by The Organic Chemistry Tutor
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Electric Force
by Bozeman Science
20 views
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Potential at Center of Charges in a Square
by Patrick Ford
2
rankIcon
35 views
03:56

Potential Difference Between Two Charges

by Patrick Ford

2

commentsIcon

2

rankIcon

49 views

05:45

Distance to Stop a Point Charge

by Patrick Ford

1

commentsIcon

2

rankIcon

40 views

07:12

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A -2C charge lies at rest. (a) What is the potential difference between point A, which is 1.5m from the charge, and point B, which is 4m from the charge? (b) What would the work on a 4C charge be to move it from A to B?

4

commentsIcon

37 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

4 identical charges are arranged so that they are evenly spaced in a circle. If the radius of the circle is 10 cm , and the potential at the center of the circle is -100 V , what is the magnitude of each charge?

2

commentsIcon

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The x component of a uniform electric field is . What is the potential difference between and ?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The electric potential in a region of uniform electric field is at and at . What is ?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the speed of a proton that has been accelerated through ?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Point A is at and point B is at . A proton moves past point A at , what is its speed when it reaches point B?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The water molecule is a permanent electric dipole with a dipole moment of . A water molecule is aligned with an electric field of magnitude . How much energy is required to rotate the molecule 180° ?

12 views

The ElectronVolt

5 videos

VIDEOS

What is an Electron Volt?

by Step by Step Science

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What Exactly is The Electronvolt? | A Level Physics

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Electron Volt Explained, Conversion to Joules, Basic Introduction

by The Organic Chemistry Tutor

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The ElectronVolt

by Patrick Ford

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What is an electron volt (eV) and how does it relate to the joule?

by PhysicsHigh

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Equipotential Surfaces

8 videos | 1 question

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Anderson Video - Equipotential Surface due to a Point Charge

by Professor Anderson

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Anderson Video - Equipotential Surface due to a Dipole

by Professor Anderson

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Anderson Video - Work to Move Charge Across Equipotential Surfaces

by Professor Anderson

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Equipotential Surfaces

by Patrick Ford

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Equipotential Lines

by Bozeman Science

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Equipotential Lines & Surfaces, Electric Field, Work & Voltage - Physics

by The Organic Chemistry Tutor

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EQUIPOTENTIAL SURFACES

by 7activestudio
40 views
01:31

Field due to Equipotential Surfaces

by Patrick Ford
3

commentsIcon
1

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54 views
02:43

PRACTICE

Open Question

Draw the electric field that corresponds to the equipotential surfaces shown in the following figure. Note that the potential is decreasing in the upward direction.

12 views

26. Capacitors & Dielectrics

Capacitors & Capacitance

6 videos | 2 questions

VIDEOS

Capacitors and Capacitance

by Andrey K
45 views
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Parallel Plate Capacitor Physics Problems

by The Organic Chemistry Tutor
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Capacitors Explained - The basics how capacitors work working principle
by The Engineering Mindset
110 views
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Capacitors & Capacitance (Intro)
by Patrick Ford
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102 views
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Capacitors - Basic Introduction - Physics
by The Organic Chemistry Tutor
34 views
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Capacitors and capacitance | Circuits | Physics | Khan Academy
by khanacademymedicine
32 views
05:43

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

What is the potential across a Math output error capacitor that is storing Math output error of charge?

14 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

Two pieces of metal are connected to one another by a plastic rod. A student finds that when one has a charge of 12 nC, and the other has a charge of -12 nC, the potential difference between them is . What is the capacitance of the arrangement?

3 views

Parallel Plate Capacitors

6 videos | 7 questions

VIDEOS

Anderson Video - Electric Field Energy Density

by Professor Anderson
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The Parallel Plate Capacitor Equation
by Jennifer Cash
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Parallel Plate Capacitor Physics Problems
by The Organic Chemistry Tutor
24 views
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Parallel Plate Capacitors
by Patrick Ford
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85 views
08:53

Parallel Plate Capacitors
by Andrey K
22 views
11:18

Point Charge Inside Capacitor
by Patrick Ford
4
commentsIcon
1
rankIcon
64 views
06:07
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two circular plates of radius 2cm are brought together so their separation is 5mm. What is the capacitance of these plates?

76 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 3 F capacitor is given a potential difference across its plates of 10 V. What is the charge built up on its plates? If the source of the potential difference across the plates is removed, but the plates maintain their charge, what is the new potential difference across the capacitor if the distance between the plates is doubled?

1

commentsIcon

51 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the smallest possible capacitance of a parallel-plate capacitor with plate area separated by a distance , if you can fill it with any of the materials listed in Table 21.3?

2 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

One gallon of typical gasoline has 132 MJ of energy. You wish to store that much energy in a parallel-plate capacitor for an electric car. Assume you charge the capacitor using a power source. You can fill the capacitor with any of the materials listed in Table 21.3, but the spacing between plates has to be 0.080 mm. What is the minimum surface area required for the capacitor? This may help to understand challenges in engineering electric cars.

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A parallel plate capacitor consists of two circular plates of radius 12 cm separated by . What is the electric field strength inside the capacitor when the plates carry a charge of μ ?

4 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the capacitance of a parallel plate capacitor with plate area separated by a distance ?

14 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A parallel plate capacitor is charged up using a battery. The battery is then removed, and the plate separation is increased by somebody wearing insulating gloves. What happens to the potential difference between the plates?

1 views

Energy Stored by Capacitor

6 videos | 1 question

VIDEOS

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Capacitors (7 of 9) Energy Stored in a Capacitor, An Explanation
by Step by Step Science
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09:12

How To Calculate The Energy Stored In a Capacitor
by The Organic Chemistry Tutor
40 views
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Energy Stored by Capacitor
by Patrick Ford
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62 views
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Energy of a capacitor | Circuits | Physics | Khan Academy
by khanacademymedicine
32 views
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Energy Released by Flashbulb
by Patrick Ford
3
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1
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42 views
03:55

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A cardiac defibrillator can be modeled as a parallel plate capacitor. When it is charged to a voltage of 2 kV, it has a stored energy of 1 kJ. What is the capacitance of the defibrillator?

2

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42 views

Capacitance Using Calculus

5 videos | 1 question

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Capacitance of a Co-axial Cable

by Jimmy Newland

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Derivation of Capacitance for a Cylindrical Capacitor

by Patrick Kaplo

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Physics 39 Capacitors (1 of 37) The Spherical Capacitor

by Michel van Biezen

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Capacitance of Spherical Capacitor

by Patrick Ford

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03:11

Capacitance of Cylindrical Capacitor

by Patrick Ford

3

commentsIcon

1

rankIcon

53 views

04:21

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In the figure, . The switch has been in position a for a long time. At the switch is moved to position b. At what time will the voltmeter read

9 views

Combining Capacitors in Series & Parallel

7 videos | 3 questions

VIDEOS

Anderson Video - Capacitors in Parallel

by Professor Anderson

21 views

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Anderson Video - Capacitors in Series

by Professor Anderson

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Capacitors (3 of 11) Parallel Capacitors, Voltage, Charge & Capacitance

by Step by Step Science

20 views

08:10

Combining Capacitors in Series & Parallel

by Patrick Ford

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62 views

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Capacitors (2 of 11) Series Capacitors, Voltage, Charge & Capacitance

by Step by Step Science

23 views
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Capacitors in Series and Parallel Explained!
by The Organic Chemistry Tutor
58 views
03:34

Find Equivalent Capacitance #1
by Patrick Ford

1

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1

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51 views

03:44

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent capacitance of the following capacitors?

43 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent capacitance of a Math output error capacitor and Math output error capacitor connected in series?

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent capacitance of a Math output error capacitor and Math output error capacitor connected in parallel?

1 views

Solving Capacitor Circuits

7 videos | 3 questions

VIDEOS

Anderson Video - RC Circuits

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Finding Charge and Voltage Across A Capacitor In Circuit
by NPTutoring

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How To Solve Any Circuit Problem With Capacitors In Series and Parallel Combinations -
Physics
by The Organic Chemistry Tutor
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Solving Capacitor Circuits
by Patrick Ford
2
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Capacitors (5 of 11) in Combination, Parallel and Series Capacitors
by Step by Step Science
20 views
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Capacitors (4 of 11) in Combination, Series and Parallel Capacitors
by Step by Step Science
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Find Charge of One Capacitor (Simple)
by Patrick Ford
2
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48 views
02:25
PRACTICE
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
What is charge and voltage across each capacitor below?
2
commentsIcon
62 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the voltage of the battery below?

4

commentsIcon

37 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the charge on the 5 F capacitor? (hint:be careful with series vs parallel)

2

commentsIcon

31 views

Intro To Dielectrics

6 videos | 3 questions

VIDEOS

8.02x - Lect 8 - Polarization, Dielectrics, Van de Graaff Generator, Capacitors

by Lectures by Walter Lewin. They will make you ♥ Physics.

23 views

07:28

Capacitors (6 of 9) Factors Affecting the Capacitance of a Capacitor

by Step by Step Science

24 views

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Dielectrics and Dielectric Constant

by Andrey K

49 views

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Intro To Dielectrics

by Patrick Ford

2

commentsIcon

3

rankIcon

56 views

06:25

An introduction to dielectrics
by Tonya Coffey
21 views
10:32

Partial Dielectrics
by Patrick Ford
7

commentsIcon

42 views

04:59

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A capacitor in a vacuum is charged to 64V between its plates, then disconnected. Initially, each plate has 32 μ C. An insulating slab of dielectric glass with $k = 3$ is placed between the plates. a) What is the capacitor's new capacitance? b) What is the new voltage across the capacitor?

44 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A parallel plate capacitor is formed by bringing two circular plates, of radius 0.5 cm, to a distance of 2 mm apart. The capacitor is made so that it has a dielectric of constant k between the plates. When the charge on the capacitor is 3 nC, the voltage of the capacitor is 5000 V. What is the dielectric constant?

2

commentsIcon

56 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A parallel plate capacitor with air separating the plates is fully charged by a battery. The battery is disconnected and an insulator with dielectric constant of 1.5 is inserted between the plates by somebody wearing insulating gloves. What happens to the potential difference between the plates?

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How Dielectrics Work

3 videos

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by The Organic Chemistry Tutor
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Dielectrics in capacitors | Circuits | Physics | Khan Academy

by khanacademymedicine
16 views
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How Dielectrics Work
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48 views
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Dielectric Breakdown
5 videos
VIDEOS

5 Insulator Breakdown & Dielectric Strength
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Leyden jar & dielectric breakdown
by Electric and Magnetic Fields
20 views
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Demos: Dielectric breakdown
by Caltech's Feynman Lecture Hall
13 views
01:51

Dielectric Breakdown
by Patrick Ford
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Physics - E&M: Ch 39.1 Capacitors & Capacitance Understood (22 of 27) What is Dielectric Breakdown?

by Michel van Biezen

23 views

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27. Resistors & DC Circuits

Intro to Current

9 videos | 3 questions

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Anderson Video - Electric Circuits Intro

by Professor Anderson

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Anderson Video - Electric Current

by Professor Anderson

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Anderson Video - Charge in a AA Battery

by Professor Anderson

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Intro to Current

by Patrick Ford

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Anderson Video - Current in Everyday Devices
by Professor Anderson
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Anderson Video - DC vs. AC
by Professor Anderson
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The Electric Battery and Conventional Current - Introduction to Basic Electricity
by The Organic Chemistry Tutor
34 views
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Electric Current, An Explanation
by Step by Step Science
44 views
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Intro to current (& Amperes)
by Khan Academy India - English
22 views
08:45

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A lightning bolt hits the ground carrying a current of 3×10^4 A. If the strike lasts 50 ms, how much charge enters the ground?

1

commentsIcon

51 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Which of the following is always true about capacitors and batteries?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire is connected to the positive and negative plates of a capacitor. Electrons in the wire feel an attraction toward the positive plate of a capacitor, and a repulsion from the negative plate.

What is true about the motion of these electrons?

12 views

Resistors and Ohm's Law

11 videos | 7 questions

VIDEOS

Anderson Video - Ohm's Law

by Professor Anderson

41 views

08:59

Anderson Video - Resistance Example

by Professor Anderson

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Anderson Video - Resistance and Resistivity

by Professor Anderson

25 views

06:13

Resistance and Ohm's Law

by Patrick Ford

2

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121 views

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Anderson Video - Measuring Current and Voltage

by Professor Anderson

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Ohm's Law, Example Problems

by Step by Step Science

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Ohm's law - derivation (using drift velocity)| Electricity | Physics | Khan Academy
by Khan Academy India - English
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Resistance & Resistivity, An Explanation
by Step by Step Science
31 views
09:30

Ohm's Law
by SparkFun Electronics
50 views
06:16

Resistivity & Resistors in Circuits
by Patrick Ford
2
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2
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77 views
05:26

Current Through Unknown Resistor
by Patrick Ford
1
rankIcon
53 views
02:33
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
A resistor has a current through it of 5 A. If the EMF across the resistor is 10 V, what is the resistance of this resistor?
51 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two resistors are made of the same material, one twice as long as the other. If the current through the shorter resistor is 5 A, what is the current through the longer resistor if they both have the same potential difference?

43 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire runs from the positive plate of a capacitor, into lightbulb 1, then out from lightbulb 1 directly into lightbulb 2. When lightbulb 2 is connected to the negative plate of the capacitor, what is true about the charge moving through the two lightbulbs?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A copper wire with a radius of r and a length of L is connected across the terminals of a battery. How much current flows in the wire?

18 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A certain wire has length L and radius r , and a resistance of R . That wire is melted down and the same volume of the same metal is used to produce a wire with length $2L$. What is the resistance of the resulting wire?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A copper wire and an aluminum wire have the same diameter. If the copper wire is L long, how long is the aluminum wire if they have the same resistance?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Which of the following is true about the change in potential across a resistor in a circuit?

4 views

Power in Circuits

5 videos | 4 questions

VIDEOS

Electric Power (2 of 3) Example Problems

by Step by Step Science

23 views

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Electric Power (1 of 3) and Watts, An Explanation

by Step by Step Science

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Basic Electricity - Power and watts

by Afrotechmods

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Power in Circuits

by Patrick Ford

1

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1

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64 views

06:18

Electric power | Circuits | Physics | Khan Academy

by Khan Academy Physics

30 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A hair dryer operates at 120 V (the voltage produced by a household outlet), and outputs 1200 W of energy. For this problem, treat the hair dryer as a single resistor. (a) At what current does the hair dryer operate?

(b) What is the resistance of the hair dryer?

1

commentsIcon

48 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An incandescent lightbulb produces 100 W of light. If this lightbulb operates at 25% efficiency (meaning that out of all the power it generates, only 25% is released as light), what resistance must the lightbulb have if it operates at 120 V?

4

commentsIcon

36 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A toaster is connected to a wall outlet, which provides a potential difference of . What is the effective resistance of the toaster?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A certain resistor is connected across a battery and dissipates of power. The battery is replaced with an battery. How much power is dissipated in the resistor now?

8 views

Microscopic View of Current

5 videos | 4 questions

VIDEOS

Anderson Video - Electron Drift Example

by Professor Anderson

23 views

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Drift Velocity Derivation - A Level Physics

by VT Physics

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Current from drift velocity ($I = neAv_d$) | Electricity | Physics | Khan Academy

by Khan Academy India - English

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Microscopic View of Current

by Patrick Ford

3

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66 views

08:17

Drift velocity (concept & intuition) | Electricity | Physics | Khan Academy

by Khan Academy India - English

47 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Typical household wiring in the United States is 14-gauge copper wire. 14-gauge wire has a radius of . What is the electron drift speed if a current is carried in a 14-gauge wire?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the current density in a wire with a radius of carrying a current of ?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What current does a electric field create in an iron wire of mm radius?

13 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the electron current in a gold wire with a radius of when the electron drift speed is Math output error?

11 views

Combining Resistors in Series & Parallel

13 videos | 6 questions

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Anderson Video - Circuit Elements

by Professor Anderson

23 views

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Anderson Video - Resistance and Temperature

by Professor Anderson

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Anderson Video - Superconductors

by Professor Anderson

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Combining Resistors in Series & Parallel

by Patrick Ford

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Anderson Video - DC Circuits Intro

by Professor Anderson

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Anderson Video - Circuits with Resistors

by Professor Anderson

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Anderson Video - Internal Resistance

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How to Add Resistors in a Parallel Circuit

by PhysicsHands

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Calculating resistance in parallel

by plowton

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Resistors in Electric Circuits (4 of 16) Adding Resistors to Series Circuits, Part 1

by Step by Step Science

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Resistors in Series and Parallel

by Ben Finio

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Shortcut Equations for Resistors Parallel

by Patrick Ford

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Weird Arrangement (Re-Drawing Resistors)

by Patrick Ford

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55 views

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PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent resistance of the following combination of resistors?

1

commentsIcon

76 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent resistance of the following combination of resistors?

53 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If every resistor below has resistance R , what is the equivalent resistance of the combination, in terms of R ?

38 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent resistance of a resistor in parallel with a resistor?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the equivalent resistance of a resistor in series with a resistor?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Three identical resistors are in parallel, and together they have an equivalent resistance of R .

What is the resistance of each resistor?

9 views

Kirchhoff's Junction Rule

5 videos | 4 questions

VIDEOS

Anderson Video - Kirchhoff's Junction Rule

by Professor Anderson

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03:49

Anderson Video - Complex Circuit Example

by Professor Anderson

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23 views

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Simplest Explanation of KIRCHHOFF'S LAWS (kcl kvl)

by Fight Academy

47 views

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Kirchhoff's Junction Rule

by Patrick Ford

4

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1

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91 views

04:08

Kirchoff's Junction Rule for Electric Circuits

by lasseviren1

22 views

09:41

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

There is a junction of three wires. flow into the junction along one path, and flow out along another path. How much charge flows in or out along the third path in ?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In the figure, and . What are and ?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Five wires intersect at a point. Wires A, B, and C carry currents into the point, out of the point, and into the point, respectively. What can you say about the remaining two wires, D and E?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

Which of the following statements is correct?

8 views

Solving Resistor Circuits

10 videos | 4 questions

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Anderson Video - Equivalent Resistance

by Professor Anderson

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Resistors in Electric Circuits (9 of 16) Combination Resistors No. 1

by Step by Step Science

43 views

11:33

Resistors in Electric Circuits (10 of 16) Combination Resistors No. 2

by Step by Step Science

29 views

11:25

Solving Resistor Circuits

by Patrick Ford

7

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Circuit analysis - Solving current and voltage for every resistor

by Math Meeting

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How to Solve Any Series and Parallel Circuit Problem

by Jesse Mason

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Electrical Engineering: Basic Laws (12 of 31) Kirchhoff's Laws: A Harder

by Michel van Biezen

22 views

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How to Solve a Kirchhoff's Rules Problem - Simple Example

by Jesse Mason

31 views

09:11

Solving Circuit Problems using Kirchhoff's Rules

by Physics Ninja

79 views

19:19

Find Current of One Resistor

by Patrick Ford

4

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48 views

01:49

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is current and voltage across each resistor below?

2

commentsIcon

49 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the voltage of the battery below?

4

commentsIcon

42 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The five identical lightbulbs in the figure are all glowing. What change in brightness will occur if bulb S is unscrewed and removed from the circuit?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If the current in the resistor is , what is ?

11 views

Kirchhoff's Loop Rule

9 videos | 3 questions

VIDEOS

Anderson Video - Kirchhoff's Loop Rule

by Professor Anderson

45 views

04:46

Kirchhoff's Rules (Laws) - Introduction

by Jesse Mason

31 views

03:50

Kirchhoff's Loop Rule for Electric Circuits

by lasseviren1

19 views

10:51

Intro to Kirchhoff's Loop Rule

by Patrick Ford

4

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119 views

11:16

Direction of Current in Loop Equations

by Patrick Ford

5

commentsIcon

1

rankIcon

70 views

09:49

Solving Circuits with Multiple Sources

by Patrick Ford

16

commentsIcon

1

rankIcon

48 views

12:36

Combining Voltage Sources in Series

by Patrick Ford

3

commentsIcon

1

rankIcon

76 views

04:01

Find Two Voltages (3 sources)

by Patrick Ford

2

commentsIcon

1

rankIcon

41 views

07:05

How to Check Your Work (Kirchhoff's Rules)

by Patrick Ford

7

commentsIcon

1

rankIcon

43 views

07:02

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

For the circuit below, find the current through each of the 3 branches.

6

commentsIcon

82 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

For the circuit below, calculate (a) the voltage V_1 shown, and (b) the current through the 6-Ohm resistor.

1

commentsIcon

99 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

For the circuit below, calculate the voltage across the 100-Ohm resistor.

3

commentsIcon

49 views

28. Magnetic Fields and Forces

Magnets and Magnetic Fields

8 videos | 5 questions

VIDEOS

Anderson Video - Magnetism Intro

by Professor Anderson

1

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53 views

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Anderson Video - Tesla Units

by Professor Anderson

36 views

01:52

Magnetism (1 of 13) Magnets & Magnetic Field Lines, An Explanation

by Step by Step Science

38 views

11:01

How Magnets Work

by Patrick Ford

88 views

04:20

Magnetism: Crash Course Physics #32

by CrashCourse

42 views

03:49

Magnets and Magnetic Fields

by Professor Dave Explains

39 views

06:15

Magnetic Fields and Magnetic Dipoles

by Patrick Ford

2

commentsIcon

74 views

06:04

Compasses and Earth's Magnetic Field

by Patrick Ford

4

commentsIcon

96 views

11:32

PRACTICE

How Magnets Work Concept:

by

15 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Which option best completes the following sentence? If a magnet is carefully balanced, as in a compass, the north end of the magnet points roughly toward...

17 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire carries a positive current to the left in the plane of this screen. What is the direction of the magnetic field at a point near the top of the screen, still in the plane of the screen?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

At what distance from a wire carrying a 10 A current is the magnetic field strength equal to ?
This is the approximate value of the earth's magnetic field.

1

rankIcon

16 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Two long parallel wires lie in the xy -plane, each carrying a 5.0 A current in opposite directions. Wire 1 lies along the y axis and carries a current in the positive y -direction; wire 2 lies along the x axis and carries a current in the negative x -direction. What is the magnitude of the magnetic field at the point $(4, 4)$ m?

19 views

Summary of Magnetism Problems

5 videos | 1 question

VIDEOS

Anderson Video - Magnetic Materials

by Professor Anderson

24 views

04:28

Anderson Video - Hard Drives

by Professor Anderson

24 views

05:56

Magnetic (AP Physics SuperCram Review)

by We Are Showboat

29 views

04:40

Summary of Magnetism Problems

by Patrick Ford

5

commentsIcon

1

rankIcon

70 views

09:52

Magnetism Problems

by Dr. Oommen George

24 views

35:30

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A loop of wire with a radius of r lies in the xy -plane and is centered on the origin. It carries a counterclockwise current of I A when viewed from above the xy -plane. A long, straight wire lies along the line $x = r$, so that it is tangent to the lowest point on the loop. This straight wire carries a current of I in the negative x -direction. What is the strength of the magnetic field at the center of the loop?

10 views

Force on Moving Charges & Right Hand Rule

7 videos | 2 questions

VIDEOS

Anderson Video - Magnetic Force Right Hand Rule

by Professor Anderson

32 views

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Anderson Video - Right Hand Rule Examples

by Professor Anderson

31 views

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Anderson Video - Magnetic Fields and Work

by Professor Anderson

11 views

02:50

Force on Moving Charges & Right Hand Rule

by Patrick Ford

20

commentsIcon

1

rankIcon
87 views
19:57

Magnetic Force & the Right Hand Rule
by SiouxFallsPhysics
26 views
09:04

Physics - Magnetic Forces on Moving Charges - Direction (1 of 6) An Introduction
by Michel van Biezen
30 views
08:26

Force on Charge Moving at an Angle
by Patrick Ford
7

commentsIcon
48 views
06:21
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An electron is moving in a straight line (red line below) when it enters the horizontal 0.2 T magnetic field (blue lines). The angle shown below is 37° . If the electron experiences a 10-12 N force upon entering the field, how fast must it be moving?

10

commentsIcon
50 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A charged particle moving in a magnetic field experiences a force toward the top of this screen when it is moving toward the right and the field is into this screen. Is this particle positive, negative or neutral?

6 views

Circular Motion of Charges in Magnetic Fields

5 videos | 1 question

VIDEOS

Anderson Video - Motion of Charge in Fields

by Professor Anderson
25 views
03:52

Anderson Video - Cyclotron Motion
by Professor Anderson
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27 views
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Path of charged particle in magnetic field | Moving charges & magnetism | Physics | Khan
Academy
by Khan Academy India - English
31 views
12:01

Circular Motion of Charges in Magnetic Fields
by Patrick Ford
6
commentIcon
66 views
11:33

Uniform Circular Motion in a Magnetic Field (Charged Particle Trajectory, Cyclotron/Accelerator)
by Elucyda
37 views
12:37

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 4 kg, 3 C (unknown sign) charge originally moving in the +x axis with 5 m/s when it enters (red arrow) a small square area that has a constant magnetic field, as shown below. The field causes the charge to be deflected, and it exits the area moving in the +y axis. What is the magnitude of the magnetic field? (Is this charge +3 C or -3 C?)

4
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35 views
Mass Spectrometer
7 videos | 2 questions
VIDEOS

Anderson Video - Mass Spectrometer

by Professor Anderson

25 views

09:37

AP Physics 2: Magnetism 8: Mass Spectrometer Problem

by Yau-Jong Twu

21 views

04:33

AP Physics 2: Magnetism 7: Mass Spectrometer

by Yau-Jong Twu

28 views

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Mass Spectrometers

by Patrick Ford

6

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Mass Spectrometer

by Andrey K

19 views

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Mass spectrometry | Atomic structure and properties | AP Chemistry | Khan Academy

by Khan Academy

44 views

04:18

Find Mass-to-Charge Ratio in Spectrometer

by Patrick Ford

1

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53 views

04:12

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A negative charge in a spectrometer is accelerated in the negative x-axis. It is later deflected and collides some distance ABOVE velocity selector. What are the orientations of the electric and magnetic fields, respectively, inside the selector?

3

commentsIcon

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 2 kg, -3 C charge is accelerated through a potential difference of 4 V. The velocity selector has an electric field of magnitude 5 N/C. How far from the velocity selector will the charge collide against the spectrometer "wall"?

1

commentsIcon

27 views

Magnetic Force on Current-Carrying Wire

6 videos | 2 questions

VIDEOS

Anderson Video - Force on a Wire in a Magnetic Field

by Professor Anderson

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Magnetic Force on a Current Carrying Wire

by The Organic Chemistry Tutor

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Force on a Current Carrying Wire in a Magnetic field

by James Dann, Ph.D.

41 views

01:27

Magnetic Force on Current-Carrying Wire

by Patrick Ford

4

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70 views

09:57

Magnetic force on a current carrying wire | Physics | Khan Academy

by Khan Academy

23 views

10:55

Find Force on Current-Carrying Wire at an Angle

by Patrick Ford

3

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43 views

08:48

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 5-m current-carrying wire (red line) is ran through a 4 T magnetic field (blue lines), as shown. The angle shown is 30° . What must the magnitude and direction of the current in the wire be when it feels a 3 N force directed into the page?

3

commentsIcon

38 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a certain type of wire has a length of L and a mass of m . At a point where earth's magnetic field is parallel to its surface, how much current would have to flow in this wire for the magnetic force on it to equal its weight?

8 views

Force and Torque on Current Loops

6 videos | 2 questions

VIDEOS

Anderson Video - Force on a Wire in a Magnetic Field

by Professor Anderson

21 views

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Anderson Video - Magnetic Torque

by Professor Anderson

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13:27

Force and Torque on Current Loops

by Patrick Ford

7

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2

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60 views

12:54

Torque acting on current loops | Moving charges & magnetism | Physics | Khan Academy

by Khan Academy India - English

17 views

04:34

Torque on a Current Loop In a Magnetic Field & Magnetic Dipole Moment - Physics

by The Organic Chemistry Tutor

32 views

10:12

Torque on a Loop at an Angle

by Patrick Ford

6

commentsIcon

1

rankIcon

32 views

05:03

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A square loop of wire has a side length of a and carries a current I . What is the size of its magnetic dipole moment?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A single circular loop of wire has a radius

29. Sources of Magnetic Field

Magnetic Field Produced by Moving Charges

3 videos | 4 questions

VIDEOS

Calculating the Magnetic Field Due to a Moving Point Charge

by lasseviren1

39 views

09:00

Magnetic Field of a Moving Charge, Proton, Right Hand Rule - Physics & Electromagnetism

by The Organic Chemistry Tutor

33 views

06:24

Magnetic Field Produced by Moving Charges

by Patrick Ford

4

commentsIcon

1

rankIcon

68 views

10:47

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

As a proton passes the origin, its velocity is in the positive x direction. What is the magnitude of the magnetic field at the point $(, ,)$?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

As a proton passes the origin, its velocity is in the positive x direction. What is the direction of the magnetic field at the point $(, ,)$?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A charged particle moving in a magnetic field has a force to the top of the page when it is moving toward the right and the field is into the page. Is this particle positive, negative or neutral?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the force on an electron with velocity

in a region of space with magnetic field

?

8 views

Magnetic Field Produced by Straight Currents

7 videos | 5 questions

VIDEOS

Anderson Video - Magnetic Field from a Long Wire

by Professor Anderson

16 views

07:20

Magnetic Field due to Long Wire

by Andrey K

29 views

07:07

Magnetic Field of a Straight Current Carrying Wire

by The Organic Chemistry Tutor

36 views

14:32

Magnetic Field Produced by Straight Currents

by Patrick Ford

9

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59 views

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Magnetic field created by a current carrying wire | Physics | Khan Academy

by Khan Academy

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Find Field due to Two Perpendicular Currents

by Patrick Ford

8

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1

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43 views

06:51

Find Zero Magnetic Field

by Patrick Ford

2

commentsIcon

1

rankIcon

43 views

07:55

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

At what distance from a wire carrying a current is the magnetic field strength equal to Math output error? This is the approximate value of the Earth's magnetic field.

15 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Typical household wiring in the United States is 14-gauge copper wire which has a radius of Math output error. What is the magnetic field strength inside the wire, halfway between the center and the outside edge, when it is carrying a typical household current of ?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire near the equator carries a current perpendicular to the Earth's magnetic field of μ in a location where the field is parallel to the ground and points straight north. Assuming it was of correct magnitude, what direction should the current be in to levitate the wire?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire near the equator carries a current perpendicular to the Earth's magnetic field of μ in a location where the field is parallel to the ground and points straight north. The wire has a mass per length of . What magnitude of current in the wire could balance it against the force of gravity? (This example is not very realistic. The mass per length given would be reasonable for a very thin wire which could not handle this large of a current for very long.)

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A wire near the equator carries a current perpendicular to the Earth's magnetic field of μ in a location where the field is parallel to the ground and points straight north. The wire has a mass

per length of . What magnitude of current in the wire could balance it against the force of gravity? (This example is not very realistic. The mass per length given would be reasonable for a very thin wire which could not handle this large of a current for very long.)

5 views

Magnetic Force Between Parallel Currents

5 videos | 3 questions

VIDEOS

Anderson Video - Magnetic Force Between Parallel Wires

by Professor Anderson

22 views

13:04

Magnetic Force Between Two Parallel Current Carrying Wires, Physics & Electromagnetism

by The Organic Chemistry Tutor

27 views

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Magnetism (11 of 13) Magnetic Force Due to Parallel Wires, Current Opposite Directions

by Step by Step Science

35 views

08:09

Magnetic Force Between Parallel Currents

by Patrick Ford

5

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1

rankIcon

50 views

10:11

Magnetism (10 of 13) Magnetic Force Due to Parallel Wires, Current Same Direction

by Step by Step Science

26 views

05:49

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

Two very long wires of unknown lengths are a parallel distance of 2 m from each other. If both wires have 3 A of current flowing through them in the same direction, what must the force per unit length on each wire be? BONUS: Is the mutual force between the wires attractive or repulsive?

2

commentsIcon

35 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

Two long parallel wires lie in the x-y plane, and each carry currents in opposite directions. Wire 1 lies along the line and carries a current in the positive x direction; wire 2 lies along the $y = 0$ line and carries a current in the negative x direction. What is the magnitude of the magnetic field at the point $(, ,)$?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

Two long parallel wires lie in the x-y plane, and each carry currents in opposite directions. Wire 1 lies along the line and carries a current in the negative x direction; wire 2 lies along the line and carries a current in the positive x direction. What is the direction of the magnetic field at the point $(, ,)$?

11 views

Magnetic Force Between Two Moving Charges

1 video

VIDEOS

Magnetic Force Between Two Moving Charges

by Patrick Ford

2

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99 views

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Magnetic Field Produced by Loops and Solenoids

4 videos | 6 questions

VIDEOS

Magnetic Field Produced by Loops and Solenoids

by Patrick Ford

12

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72 views

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Find How Many Loops in a Solenoid

by Patrick Ford

45 views

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Designing a Solenoid (Total Length of Wire)

by Patrick Ford

1

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Find Magnetic Field By Two Concentric Loops

by Patrick Ford

7

commentsIcon

49 views

05:37

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The single loop below has a radius of 10 cm and is perpendicular to the page (shown at a slight angle so you can better visualize it). If the magnetic field at the center is 10^{-6} T directed left, what is the magnitude of the current? What is the direction of the current at the top of the wire: into the page (towards left) or out of the page (towards right)?

1

commentsIcon

34 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A long wire having total resistance of $10\ \Omega$ is made into a solenoid with 20 turns of wire per centimeter. The wire is connected to a battery, which provides a current in order to produce a 0.04 T magnetic field through the center of the solenoid. What voltage must this battery have?

31 views

Open Question

The two tightly wound solenoids below both have length 40 cm and current 5 A in the directions shown. The left solenoid has radius 20 cm and 50 m of total wire. The right solenoid has radius 0.5 m and 314 m of total wire. The thinner solenoid is placed entirely inside the wider one so their central axes perfectly overlap. Assume wires don't touch. What is the magnitude and direction of the magnetic field that is produced by a combination of the two solenoids at their

central axis?(Note:your worksheet may have a typo and say "0.5 cm"for the right solenoid's radius; it should be 0.5 m.)

4

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27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A certain solenoid is long and has 1500 turns of wire. If the magnetic field inside the solenoid is , what is the current in the wire?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A loop of wire has a magnetic dipole moment of . What is the on-axis magnetic field strength from the loop?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A square loop of wire with on a side carries a current. What is the size of its magnetic dipole moment?

19 views

Toroidal Solenoids aka Toroids

4 videos

VIDEOS

Magnetic Field of a Toroidal Coil

by BYU Physics Demonstrations

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Physics - E&M: Magn Field Generated by Moving Charge & Currents (28 of 28) Ampere's Law:

Toroidal

by Michel van Biezen

25 views

07:02

The Magnetic Field Due to a Toroid

by lasseviren1

48 views

08:01

Toroidal Solenoids aka Toroids

by Patrick Ford

4

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43 views

12:13

Biot-Savart Law (Calculus)

7 videos | 1 question

VIDEOS

The Law of Biot-Savart (part II)

by lasseviren1

25 views

07:37

Law of Biot-Savart

by lasseviren1

39 views

10:01

The Biot-Savart Law

by Jennifer Cash

62 views

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Biot-Savart Law with Calculus

by Patrick Ford

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Physics - E&M: Magn Field Generated by Moving Charges & Current (14 of 28) Biot-Savart Law: Ex

by Michel van Biezen

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Biot Savart law (vector form) | Moving charges & magnetism | Khan Academy

by Khan Academy India - English

54 views

12:50

Magnetic Field due to Finite Wire

by Patrick Ford

2

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37 views

07:59

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the magnetic field at the center of the following ring of current?

3

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25 views

Ampere's Law (Calculus)

5 videos | 1 question

VIDEOS

Field due to straight wire carrying current (inside) | Moving charges & magnetism | Khan Academy

by Khan Academy India - English

22 views

12:05

Field due to straight wire carrying current (Outside) | Moving charges & magnetism | Khan Academy

by Khan Academy India - English

34 views

09:59

Finding the Magnetic Field Due to a Long, Straight, Current Carrying Wire Using Ampere's Law

by Melvin Vaughn

25 views

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Ampere's Law with Calculus

by Patrick Ford

2

commentsIcon

1

rankIcon

49 views

05:21

Magnetic Field Inside a Solenoid

by Patrick Ford

1

commentsIcon

39 views

05:22

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A solid, cylindrical conductor carries a uniform current density, J . If the radius of the cylindrical conductor is R , what is the magnetic field at a distance r from the center of the conductor when $r < R$? What about when $r > R$?

1

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86 views

30. Induction and Inductance

Intro to Induction

2 videos

VIDEOS

Electromagnetic induction (& Faraday's experiments)

by Khan Academy India - English

35 views

10:12

Introduction to Induction

by Patrick Ford

1

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1

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76 views

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Magnetic Flux
6 videos | 3 questions
VIDEOS

Anderson Video - Magnetic Flux
by Professor Anderson
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Electromagnetic Induction (2 of 15) Magnetic Flux, An Explanation
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45 views
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Flux and magnetic flux
by Khan Academy
23 views
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Magnetic Flux
by Patrick Ford
1
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89 views
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Magnetic Flux, Basic Introduction - Physics Problems
by The Organic Chemistry Tutor
26 views
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Magnetic Flux of a Rotating Ring
by Patrick Ford
1

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64 views

04:27

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A ring of radius 0.5m lies in the xy-plane. If a magnetic field of magnitude 2 T points at an angle of 22° above the x-axis, what is the magnetic flux through the ring?

6

commentsIcon

39 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A square conducting loop with sides equal to a lies such that the plane of the loop is perpendicular to a magnetic field. What is the flux through the loop?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A square conducting loop with sides equal to a lies such that the plane of the loop is perpendicular to the μ magnetic field. What is the flux through the loop?

13 views

Faraday's Law

8 videos | 4 questions

VIDEOS

Anderson Video - Faraday's Law

by Professor Anderson

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Anderson Video - Faraday's Law Example

by Professor Anderson

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Faraday's Law

by Patrick Ford

5

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62 views

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Faraday's Law example | Physics | Khan Academy

by Khan Academy

23 views

09:29

Faraday's Law Introduction | Physics | Khan Academy

by Khan Academy

33 views

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Electromagnetic Induction (6 of 15) Faraday's Law, Example Problems

by Step by Step Science

93 views

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Faraday's Law of Electromagnetic Induction, Magnetic Flux & Induced EMF - Physics & Electromagnetism

by The Organic Chemistry Tutor

69 views

11:53

Current in a Circuit with a Changing Magnetic Field

by Patrick Ford

6

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63 views

09:10

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A tightly-wound 200-turn rectangular loop has dimensions of 40cm by 70cm. A constant magnetic field of 3.5T points in the same direction as the normal of the loop. If the dimensions of the loop change to 20cm by 35cm over 0.5s, with the number of turns remaining the same, what is the induced EMF on the rectangular loop?

4

commentsIcon

35 views

Open Question

A square conducting wire of side length 4 cm is in a 2 T magnetic field. It rotates such that the angle of the magnetic field to the normal of the square increases from 30° to 60° in 2 s. What is the induced current on the wire if its resistance is 5 m Ω ?

1

commentsIcon

23 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

The figure shows a wire loop being moved toward a current-carrying wire. If the loop continues to move past the wire, so that the loop is lower than the wire in the picture, and still moving, what will be the direction of the induced current in the loop?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

In a region of space, a magnetic field is increasing at . A square loop of wire with a side of is oriented perpendicular to the field. The loop has a total resistance of . What current is induced in the loop?

9 views

Lenz's Law

7 videos | 4 questions

VIDEOS

Anderson Video - Lenz's Law

by Professor Anderson

32 views

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Anderson Video - Lenz's Law Example

by Professor Anderson

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Electromagnetic Induction (11 of 15) Lenz's Law, An Explanation

by Step by Step Science

26 views

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Lenz's Law

by Patrick Ford

2

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64 views

11:07

Lenz's Law (part 1 of 3)

by lasseviren1

22 views

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Lenz's Law | Magnetic forces, magnetic fields, and Faraday's law | Physics | Khan Academy

by Khan Academy

34 views

05:45

Lenz's Law for a Long Straight Wire

by Patrick Ford

2

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49 views

06:36

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An outer ring is connected to a variable voltage source. If the battery's voltage is continuously INCREASING, what is the direction of the induced current in the inner ring, centered inside of the outer ring?

3

commentsIcon

24 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What emf is created in a long conductor moving at v in a magnetic field? Assume the conductor's velocity is perpendicular to the field.

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If the metal triangle shown in the figure is pushed to the left, farther into the magnetic field, what is the direction of the induced current in the triangle?

13 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In a region of space, a magnetic field is increasing at . A square loop of wire with a side of is oriented perpendicular to the field. The loop has a total resistance of . What current is induced in the loop?

12 views

Motional EMF

6 videos | 2 questions

VIDEOS

Motional emf

by Andrey K

41 views

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Emf induced in rod traveling through magnetic field | Physics | Khan Academy

by Khan Academy

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Electromagnetic Induction (1 of 15) Emf Across a Moving Wire, Motional Emf

by Step by Step Science

27 views

08:04

Motional EMF

by Patrick Ford

58 views

09:57

Motional EMF

by Physics Ninja

32 views

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Forces on Loops Exiting Magnetic Fields

by Patrick Ford

3

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07:19

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A thin rod moves in a perpendicular, unknown magnetic field. If the length of the rod is 10 cm and the induced EMF is 1 V when it moves at 5 m/s, what is the magnitude of the magnetic field?

34 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 30 mH inductor carries a current of . If the circuit is opened and the current stops over a period of μ , what potential develops across the inductor?

7 views

Transformers

5 videos | 2 questions

VIDEOS

Anderson Video - Transformer Example

by Professor Anderson

16 views

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Anderson Video - Transformers

by Professor Anderson

18 views

07:32

Transformers

by Patrick Ford

1

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31 views

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Transformers - working & applications (step up and step down) | A.C. | Physics | Khan Academy

by Khan Academy India - English

44 views

09:03

Transformers | Magnetism | Physics | FuseSchool

by FuseSchool - Global Education

20 views

04:09

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An outlet in North America outputs electricity at 120 V, but a typical laptop needs to operate at around 20 V. In order to do so, a transformer is placed in a laptop's power supply. If the coil in the circuit connected to the laptop has 20 turns, how many turns must the coil in the circuit with the outlet have?

2

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21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A transformer has 200 turns in the primary and 25 turns in the secondary. If the primary is hooked up to a household outlet, what is the potential across the secondary coil?

10 views

Mutual Inductance

4 videos | 1 question

VIDEOS

Anderson Video - Mutual Inductance

by Professor Anderson

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Physics - E&M: Inductance (1 of 20) Mutual Inductance Explained

by Michel van Biezen

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Mutual Induction

by Patrick Ford

3

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35 views

12:59

Mutual induction & inductance | Electromagnetic induction | Physics | Khan Academy
by Khan Academy India - English

27 views

09:25

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An outer solenoid with 30 turns is wound tightly around an inner coil 25cm long with a diameter of 4cm and 300 turns. The current in the inner solenoid is 0.12 A and is increasing at a rate of $1.75 \times 10^3 \text{ A/s}$. a) What is the average magnetic flux through each turn of the outer coil? b) If the resistance of the outer coil is $20 \text{ m}\Omega$, what is the magnitude of the induced current through the outer coil? (Note: for the Multiple Choice XXXXXXXXXXXXXXXXXXXXX, select the correct answer for part (b) only.)

5

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Self Inductance

6 videos | 2 questions

VIDEOS

Anderson Video - Self Inductance

by Professor Anderson

15 views

02:25

Anderson Video - Why Does your Appliance Spark

by Professor Anderson

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Physics - E&M: Inductance (3 of 20) Self Inductance: Explained

by Michel van Biezen

19 views

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Self Inductance

by Patrick Ford

1

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35 views
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What are inductors? (self-inductance) | Electromagnetic induction | Khan Academy
by Khan Academy India - English
32 views
06:35

Self-Inductance of a Toroid
by Patrick Ford
3

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51 views

07:28

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A single loop of wire with a current of 0.3A produces a flux of 0.005 Wb. If the self-induced EMF on this loop is 10 mV, how quickly must the current be changing?

2

commentsIcon

18 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor circuit with a single resistor in series with a single inductor has a time constant of . What is the value of the resistance if the inductor has a self-inductance of μ ?

7 views

Inductors

7 videos | 1 question

VIDEOS

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by Professor Anderson
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Anderson Video - EMF Example
by Professor Anderson
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03:27

Anderson Video - Induced Current in Wire Loop

by Professor Anderson

12 views

10:09

Inductors in Circuits

by Patrick Ford

3

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28 views

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Understanding Inductors!

by Sabins

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Electrical Engineering: Ch 7: Inductors (1 of 20) What is an Inductor?

by Michel van Biezen

28 views

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What are inductors? (self-inductance) | Electromagnetic induction | Khan Academy

by Khan Academy India - English

34 views

11:28

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 30 mH inductor carries a current of . If the circuit is opened and the current stops over a period of μ , what potential develops across the inductor?

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LR Circuits

6 videos | 2 questions

VIDEOS

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by Professor Anderson
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RL Circuit Analysis (1 of 8) Voltage and Current
by Step by Step Science
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The RL Circuit
by lasseviren1
42 views
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LR Circuits
by Patrick Ford
1
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RL Circuits - Inductors & Resistors
by The Organic Chemistry Tutor
44 views
22:26

Unknown Resistance in an LR Circuit
by Patrick Ford
1
commentsIcon
33 views
03:07

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Consider the LR circuit shown below. Initially, both switches are open. Switch 1 is closed. a) What is the maximum current in the circuit after a long time? Then, S1 is opened and S2 is closed. b) What is the current in the circuit after 0.05s?

3

commentsIcon

25 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An LR circuit with $L = 0.1 \text{ H}$ and $R = 10 \Omega$ are connected to a battery with the circuit initially broken. When the circuit is closed, how much time passes until the current reaches half of its maximum value?

4

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28 views

LC Circuits

7 videos | 3 questions

VIDEOS

LC Oscillating Circuit: Example Problems

by Step by Step Science

52 views

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LC Oscillating Circuit: An Explanation

by Step by Step Science

21 views

16:42

The LC Circuit (part II)

by lasseviren1

32 views

10:02

LC Circuits

by Patrick Ford

38 views

11:31

The LC Circuit

by lasseviren1

24 views

10:18

Oscillations in an LC Circuit

by Patrick Ford

1

commentsIcon

39 views

04:26

Energy in an LC Circuit

by Patrick Ford

2

commentsIcon

37 views

10:07

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An LC circuit with an inductor of 0.05 H and a capacitor of 35 μF begins with the current of -1A.

The capacitor plates have a maximum charge of 2.65mC at any time during the oscillation.

What is the phase angle of this oscillation?

1

commentsIcon

28 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In an oscillating LC circuit in which the capacitance $C = 4\mu\text{F}$ and the maximum voltage across

the capacitor $V = 1.50\text{V}$, the maximum current measured across the inductor is 50mA. What is

the angular frequency of this LC circuit?

20 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the resonant frequency of an LC circuit consisting of a inductor paired with a

capacitor?

9 views

LRC Circuits

5 videos

VIDEOS

RLC Circuits (14 of 19); Determining the Resonance Frequency for Series RLC Circuits

by Step by Step Science

20 views

05:43

Series RLC Circuits, Resonant Frequency, Inductive Reactance & Capacitive Reactance - AC Circuits

by The Organic Chemistry Tutor

26 views

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Introduction to RLC Circuits

by Dave Gordon

18 views

14:41

LRC Circuits

by Patrick Ford

3

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39 views

09:40

Amplitude Decay in an LRC Circuit

by Patrick Ford

2

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22 views

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31. Alternating Current

Alternating Voltages and Currents

7 videos | 5 questions

VIDEOS

What is Alternating Current (AC)?

by Math and Science

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AC Power - Alternating Current Generation - Explained
by Engineering Explained
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Electrical Current Explained - AC DC, fuses, circuit breakers, multimeter, GFCI, ampere
by The Engineering Mindset
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Alternating Voltages and Currents
by Patrick Ford
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AC Circuits: Crash Course Physics #36
by CrashCourse
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Alternating Current vs Direct Current - Rms Voltage, Peak Current & Average Power of AC
Circuits
by The Organic Chemistry Tutor
34 views
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AC Circuit Graphs
by Patrick Ford
1
commentsIcon
63 views
04:35
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source produces an alternating current in a circuit with the function $i(t) = (1.5 \text{ A}) \cos[(250 \text{ s}^{-1})t]$. What is the frequency of the source? What is the maximum current in the circuit?

1

commentsIcon

31 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The current in an AC circuit takes 0.02 s to change direction. What is the angular frequency of the AC source?

1

commentsIcon

23 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC emf source is given by $\mathcal{E} = \mathcal{E}_m \sin(\omega t)$. What is the instantaneous emf of this source at $t = 0$?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC emf source is given by $\mathcal{E} = \mathcal{E}_m \sin(\omega t)$. What is the instantaneous emf of this source at $t = \frac{\pi}{2\omega}$?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If V_{eff} for a certain 60 Hz outlet, what is the peak voltage across the outlet?

5 views

RMS Current and Voltage

8 videos | 2 questions

VIDEOS

Root Mean Square (RMS) Voltage and Current

by ElectronX Lab

59 views

11:07

Root Mean Square (RMS) Voltage for Sinusoidal, Square, and Sawtooth Signals

by Physics Ninja

39 views

18:49

RMS (Effective) Voltage and Current

by Darryl Morrell

34 views

14:57

RMS Current and Voltage

by Patrick Ford

2

commentsIcon

45 views

07:14

What is RMS value | Easiest Explanation | TheElectricalGuy

by Gaurav J - TheElectricalGuy

54 views

08:27

21.1 Rms Current and Voltage in AC Circuits

by Chad's Prep

22 views

02:25

RMS Value of AC Circuits

by The Organic Chemistry Tutor

29 views

11:43

Intro to AC Circuits using Phasors and RMS Voltage and Current | Doc Physics

by Doc Schuster

19 views

16:11

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates with a 0.05 s period. 0.025 s after the current is at a maximum, the current is measured to be 1.4 A. What is the RMS current of this AC circuit?

1

commentsIcon

16 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A person touches a wire carrying a 120 V AC voltage. One hand touches the wire, and both of the person's feet are bare and are touching the ground. Assume skin resistance at the hand and at each foot is . What is the current through the person's torso?

8 views

Phasors

9 videos | 3 questions

VIDEOS

Three phase electric power and phasor diagrams explained

by Physics Videos by Eugene Khutoryansky

32 views

05:51

Electrical Engineering: Ch 10 Alternating Voltages & Phasors (8 of 82) What is a Phasor?

by Michel van Biezen

61 views

04:46

Introduction to Phasors, Impedance, and AC Circuits

by Charles Clayton

75 views

03:53

Phasors

by Patrick Ford

1

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67 views

08:32

Lesson 10 - Practice With Phasors (AC Circuit Analysis)

by Math and Science

45 views

04:01

Phasors

by Neso Academy

46 views

13:35

Electrical Engineering: Ch 10 Alternating Voltages & Phasors (19 of 82) Phasor Addition of Voltages

by Michel van Biezen

30 views

06:02

Electrical Engineering: Ch 10 Alternating Voltages & Phasors (1 of 82) Alternating Voltages

by Michel van Biezen

26 views

04:37

Converting Between a Function and a Phasor

by Patrick Ford

36 views

03:16

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The following phasor diagram shows an arbitrary phasor during its first rotation. Assuming that it begins with an angle of 0° , if the phasor took 0.027 s to get to its current position, what is the angular frequency of the phasor?

1

commentsIcon

28 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source oscillates with an angular frequency of 120 s^{-1} . If the initial voltage phasor is shown in the following phasor diagram, draw the voltage phasor after 0.01 s. (Select the correct absolute angle below of the phasor's location below after you have drawn it.)

21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A phasor of length 4 begins at 0° . If it is rotating at $\omega = 250 \text{ s}^{-1}$, what is the value of the phasor after 0.007 s?

1

commentsIcon

19 views

Resistors in AC Circuits

11 videos | 2 questions

VIDEOS

Anderson Video - Ohm's Law for AC Circuits
by Professor Anderson
37 views
02:05

Anderson Video - Reactance Example
by Professor Anderson
23 views
03:39

Alternating Current | Pure Resistor in AC circuit
by Unal Arslan
27 views
21:46

Resistors in AC Circuits
by Patrick Ford
2
commentsIcon
30 views
03:12

Pure resistor in electrical AC Circuits
by How to BE
26 views
06:57

College Physics Lectures, Resistors in AC Circuits
by Jose Menchaca
39 views
10:13

Resistors in AC Circuits
by Prof_Clark
22 views
02:25

Resistors in AC Circuits (Power)

by ElectronX Lab

26 views

08:48

25 - AC circuits - Resistor

by Cogverse Academy

21 views

02:02

Resistors in AC Circuits

by Andrey K

27 views

07:43

Resistors in Parallel in an AC Circuit

by Patrick Ford

2

commentsIcon

51 views

02:32

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The voltage across a resistor is found to be given by $v_R(t) = (10 \text{ V}) \cos[(120 \text{ s}^{-1})t]$: a) At what frequency does the AC source operate? b) If the resistance is 12Ω , what is the maximum current in this circuit? c) What is the RMS voltage of the AC source?

32 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In a kitchen in the United States, you turn on a toaster, a microwave, and a coffee machine at the same time. All are wired in parallel and are connected to a 20 A circuit breaker. If the toaster uses _____ and the coffee machine uses _____ what is the maximum power the microwave could use without tripping the circuit breaker?

3 views

Phasors for Resistors

8 videos | 1 question

VIDEOS

26 Basic Circuit Analysis Using Phasors

by gEEch
35 views
13:07

25 - AC circuits - Resistor
by Cogverse Academy
38 views
02:01

Circuit Analysis Lecture 17: AC Circuits and Phasors
by Aaron Carman
46 views
27:00

Phasors for Resistors
by Patrick Ford
1
commentIcon
28 views
04:11

Resistor Circuit : AC sources and phasors 1
by Tech Tins
21 views
04:13

Phasor Diagram for Pure Resistive Circuits | Electrical Engineering
by Magic Marks
52 views
01:58

Electrical Engineering: Ch 10 Alternating Voltages & Phasors (22 of 82) Phasor Diagram for Resistors
by Michel van Biezen
29 views
04:32

Phasor Relationship for Resistor

by Neso Academy

14 views

04:07

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A $12\ \Omega$ resistor is connected to an AC source. If the resistor's voltage phasor is initially at 0° , and the figure below shows the phasor after 0.04 s, answer the following: a) What is the angular frequency of the source? Assume the phasor is on its first rotation. b) What does the current phasor diagram look like? c) What is the current in the circuit at this point ($t = 0.04$ s)?

3

commentsIcon

15 views

Capacitors in AC Circuits

12 videos | 6 questions

VIDEOS

Anderson Video - Capacitor Circuit Example

by Professor Anderson

27 views

04:13

Anderson Video - Capacitor in AC Circuit

by Professor Anderson

33 views

04:42

Anderson Video - Capacitor Reactance

by Professor Anderson

27 views

05:10

Capacitors in AC Circuits

by Patrick Ford

3

commentsIcon

44 views

07:09

AC Through Pure Capacitance Alone [Year- 1]

by Mobile Tutor

24 views

10:34

Capacitors in AC Circuits (Impedance)

by ElectronX Lab

20 views

19:34

AC circuit containing only capacitor (⚡ 3d animation)

by The visual Class

72 views

03:48

capacitor in ac circuit

by DG E LEARNING ADU ACADEMY

41 views

04:06

Capacitors in AC Circuits

by L2 Theory - Van Andel

24 views

13:22

RLC Circuits (4 of 19) Capacitive Reactance; Phase Shift, Phasor Diagrams, Frequency, An Explanation

by Step by Step Science

25 views

11:35

AC Circuit: Resistor and a Capacitor in series

by Physics Ninja

18 views

05:47

Current in a Parallel RC AC Circuit

by Patrick Ford

3

commentsIcon

39 views

03:45

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates at a maximum voltage of 120 V and a frequency of 60 Hz. If it is connected to a 175 μF capacitor, what is the maximum charge stored on the capacitor?

29 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 300 μF capacitor is connected to an AC source operating at an RMS voltage of 120 V. If the maximum current in the circuit is 1.5 A, what is the oscillation frequency of the AC source?

64 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The peak current to and from a capacitor is i when the emf source has a peak voltage V and frequency f . What is the peak current to and from the capacitor if the frequency and peak voltage are doubled to $2f$ and $2V$, respectively?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC circuit consists of a capacitor and an emf source with frequency f . If the source is turned on at $t = 0$, and the first time the voltage across the capacitor reaches a maximum value is at $t = t_1$, when is the first time the current in the capacitor is at a maximum?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC circuit consists of a μF capacitor and an emf source with a peak voltage of 40 V. What is the frequency of the source if the peak current is 2 A?

3 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A low-pass RC filter has a resistor in series with a μF Capacitor. What is the crossover angular frequency?

12 views

Phasors for Capacitors

8 videos | 1 question

VIDEOS

by Grover Jessie
45 views
18:37

Transforming capacitors to the phasor domain
by Edu Mdu
31 views
00:36

Phasor in Capacitor and Inductor
by Electric Videos
37 views
09:54

Phasors for Capacitors
by Patrick Ford
28 views
04:32

Phasor representation of capacitor
by Scholarswing
26 views
01:11

Example Simple Voltage current across capacitor using Phasors
by ENGRTUTOR
24 views
08:25

Phasor Relationship for Capacitor
by Neso Academy
27 views
04:54

Capacitors in AC Circuits with Phasors | Doc Physics
by Doc Schuster
19 views

16:57

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates at a maximum voltage of 60 V and is connected to a 0.7 mF capacitor. If the current across the capacitor is $i(t) = i_{\text{MAX}} \cos[(100 \text{ s}^{-1})t]$, a) What is i_{MAX} ? b) Draw the phasors for voltage across the capacitor and current in the circuit at $t = 0.02 \text{ s}$. Assume that the current phasor begins at 0° .

1

commentsIcon

28 views

Inductors in AC Circuits

8 videos | 5 questions

VIDEOS

25 - AC circuits - Inductive reactance

by Cogverse Academy

37 views

04:09

Inductors in AC Circuit (Power)

by ElectronX Lab

29 views

09:37

Inductors Explained - The basics how inductors work working principle

by The Engineering Mindset

54 views

10:19

Inductors in AC Circuits

by Patrick Ford

2

commentsIcon

58 views

07:14

Inductive Reactance, Impedance, & Power Factor - AC Circuits - Physics

by The Organic Chemistry Tutor
54 views
12:34

Inductors Have Inductance, Reactance, AND Impedance. DANG, DAWG. | Doc Physics
by Doc Schuster
36 views
10:33

AC Circuit: Inductor and Resistor in Series
by Physics Ninja
42 views
05:06

Inductors and Graphs
by Patrick Ford
1
comment/icon
23 views
03:36
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
Will a frequency $f = 60 \text{ Hz}$ or $\omega = 75 \text{ s}^{-1}$ produce a larger max current in an inductor connected to an AC source?
11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
A certain laptop charger says that the provided to the laptop is 12 V. You know this charger is plugged into an outlet for which is 120 V, such that there must be a transformer inside the laptop charger. If the number of windings of wire on the laptop side of the transformer is 60, how many windings of wire must be on the outlet side of the transformer?
8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX
The peak current to and from an inductor is when the emf source has a peak voltage and frequency . What is the peak current to and from the inductor if the frequency and peak voltage are doubled to and . respectively?
3 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC circuit consists of an inductor and an emf source with frequency f . If the source is turned on at $t = 0$, and the first time the voltage across the inductor reaches a maximum value is at $t = t_1$, when is the first time the current in the inductor is at a maximum?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

The peak current to and from an inductor is i when the emf source has a peak voltage V and frequency f . What is the peak current to and from the inductor if the frequency and peak voltage are doubled to $2f$ and $2V$, respectively?

13 views

Phasors for Inductors

9 videos | 1 question

VIDEOS

Anderson Video - Resistor and Inductor in AC Circuits

by Professor Anderson

43 views

08:17

232 213 phase of current and voltage for inductor phasor for LC circuit or LRC circuit

by dave smith

20 views

05:35

AC Theory: How to Draw a Phasor Diagram for an Inductive Load to Scale

by Joe Robinson Training

55 views

11:42

Phasors for Inductors

by Patrick Ford

2

commentsIcon

55 views

03:33

Electrical Engineering: Ch 10 Alternating Voltages & Phasors (26 of 82) RCL $V=?$ & $I=?$ - Inductor

by Michel van Biezen
42 views
03:24

Phasors Example (With resistor, inductor and capacitor)
by Electric Videos
46 views
07:20

Phasors for Inductors in AC Circuits | Doc Physics
by Grover Jessie
30 views
17:26

Phasors for Inductors in AC Circuits | Doc Physics
by Doc Schuster
29 views
15:11

Phasor Relationship for Inductor
by Neso Academy
31 views
06:03

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates at a maximum voltage of 75 V and is connected to a 0.4 H inductor. If the current across the inductor is $i(t) = i_{\text{MAX}} \cos[(450 \text{ s}^{-1})t]$, a) What is i_{MAX} ? b) Draw the phasors for voltage across the inductor and current in the circuit at $t = 4.2 \text{ ms}$. Assume that the current phasor begins at 0° .

13 views

Impedance in AC Circuits
11 videos | 2 questions
VIDEOS

Anderson Video - LRC Circuits and Impedance
by Professor Anderson
12 views

06:01

Anderson Video - Ohm's Law and Impedance

by Professor Anderson

21 views

06:58

Finding Total Impedance

by MrClean1796

43 views

05:05

Impedance in AC Circuits

by Patrick Ford

1

commentsIcon

36 views

08:40

AC Theory: How to Calculate Impedance and Construct an Impedance Triangle

by Joe Robinson Training

37 views

12:49

Electronic Basics #37: What is Impedance? (AC Resistance?)

by GreatScott!

34 views

10:09

Impedance

by The Organic Chemistry Tutor

26 views

10:32

AC current impedance - Alternating Voltage for inductors, capacitors

by Physics Videos by Eugene Khutoryansky

43 views

08:47

Resistors in AC Circuits (Impedance)

by ElectronX Lab

19 views

06:52

Introduction to Phasors, Impedance, and AC Circuits

by Charles Clayton

30 views

03:52

Impedance of a Parallel LR AC Circuit

by Patrick Ford

32 views

02:45

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What's the impedance of a parallel RC AC circuit?

24 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates at a maximum voltage of 120 V and an angular frequency of 377 s^{-1} . If this source is connected in parallel to a 15Ω resistor and in parallel to a 0.20 mF capacitor, answer the following questions: a) What is the maximum current produced by the source? b) What is the maximum current through the resistor? c) What is the maximum current through the capacitor?

16 views

Series LRC Circuits

8 videos | 6 questions

VIDEOS

RLC Circuits (12 of 19) Series RLC; Calculating Impedance, Current and Voltage

by Step by Step Science

42 views

13:16

Calculating Impedance, Supply Current and Voltages in Series RLC Circuit

by Engineers Academy
49 views
20:47

Phasor Diagram of Series RLC Circuit
by Neso Academy
61 views
08:07

LRC Circuits in Series
by Patrick Ford
2
commentsIcon
23 views
05:55

Series RLC Circuit
by Zack Hartle
33 views
21:27

RLC Circuits (3 of 19) Resistance; Phase Shift, Phasor Diagrams, Impedance, An Explanation
by Step by Step Science
27 views
05:01

AC Analysis: Series Resistor/Inductor/Capacitor Circuit
by ElectronX Lab
25 views
08:05

Phasors Example (With resistor, inductor and capacitor)
by Electric Videos
63 views
07:20
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An AC source operates at an RMS voltage of 70 V and a frequency of 85 Hz. If the source is connected in series to a $20\ \Omega$ resistor, a 0.15 H inductor and a $500\ \mu\text{F}$ capacitor, answer the following questions: a) What is the maximum current produced by the source? b) What is the maximum voltage across the resistor? c) What is the maximum voltage across the inductor? d) What is the maximum voltage across the capacitor?

1

commentsIcon

29 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor, a capacitor, and a resistor are in series with a AC source. If the capacitor is , the inductor is , and the resistor is , what is the impedance?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor, a capacitor, and a resistor are in series with a AC source with peak voltage 13 V. If the impedance of the circuit is , what is the peak current?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor, a capacitor, and a resistor are in series with an AC source. If the capacitor is $470\ \text{nF}$, the inductor is , and the resistor is $800\ \Omega$, what is the circuit's resonant (angular) frequency?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor, a capacitor, and a resistor are in series with a AC source. If the capacitor is , the inductor is and the resistor is . what is the impedance?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An inductor, a capacitor, and a resistor are in series with an AC source. If the capacitor is , the inductor is , and the resistor is . what is the circuit's resonant frequency?

5 views

Resonance in Series LRC Circuits

8 videos | 1 question

VIDEOS

RLC Circuits (14 of 19); Determining the Resonance Frequency for Series RLC Circuits

by Step by Step Science

36 views

05:43

Steady State Circuit Analysis with Phasors

by Matthew Araujo

34 views
14:31

Series RLC Circuits, Resonant Frequency, Inductive Reactance & Capacitive Reactance - AC Circuits
by The Organic Chemistry Tutor
36 views
10:45

Resonance in Series LRC Circuits
by Patrick Ford
24 views
05:23

Series Resonance in RLC Circuit
by ALL ABOUT ELECTRONICS
40 views
19:33

Phasor and The Phasor Diagram in AC Circuits Explained
by ALL ABOUT ELECTRONICS
81 views
13:29

Resonance Circuits: LC Inductor-Capacitor Resonating Circuits
by Physics Videos by Eugene Khutoryansky
47 views
07:18

AC Circuits - Impedance & Resonant Frequency
by The Organic Chemistry Tutor
30 views
30:33
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A series LRC circuit is formed with a power source operating at $V_{RMS} = 100\text{ V}$, and is formed with a $15\ \Omega$ resistor, a 0.05 H inductor, and a $200\ \mu\text{F}$ capacitor. What is the voltage across the inductor in resonance? The voltage across the capacitor?

26 views

Power in AC Circuits

8 videos

VIDEOS

Electrical Engineering: Ch 12 AC Power (36 of 58) How to Calculate the Power Factor?

by Michel van Biezen

37 views

10:56

Electrical Engineering: Ch 12 AC Power (10 of 38) What is Average Power Supplied and Absorbed? (-26.5)

by Michel van Biezen

36 views

07:15

Electrical Engineering: Ch 12 AC Power (1 of 38) Instantaneous Power

by Michel van Biezen

30 views

05:42

Power in AC Circuits

by Patrick Ford

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commentsIcon

21 views

05:37

Electrical Engineering: Ch 12 AC Power (16 of 38) How to Find Maximum Power Transferred?

by Michel van Biezen

22 views

03:14

AC Theory: How to Calculate Power Factor in an AC Circuit: What is Power Factor?

by Joe Robinson Training

48 views

13:54

Electrical Engineering: Ch 12 AC Power (2 of 38) Instantaneous Power: A Closer Look

by Michel van Biezen

19 views

04:57

Power Factor - Basic Introduction - Reactive and Apparent Power.

by The Organic Chemistry Tutor

37 views

20:27

32. Electromagnetic Waves

What is an Electromagnetic Wave?

12 videos | 4 questions

VIDEOS

Anderson Video - Electromagnetic Waves Intro

by Professor Anderson

29 views

08:54

Anderson Video - Electromagnetic Waves

by Professor Anderson

29 views

06:05

Anderson Video - How to Detect Electromagnetic Waves

by Professor Anderson

51 views

04:15

What is an Electromagnetic Wave?

by Patrick Ford

1

ranklcon
64 views
07:07

Anderson Video - Electromagnetic Wave Example
by Professor Anderson
22 views
04:55

Astronomy - Ch. 5: Light & E&M Radiation (5 of 30) How Are E&M Waves Produced?
by Michel van Biezen
41 views
09:25

Electromagnetic Waves - with Sir Lawrence Bragg
by Ri Archives
31 views
20:23

Intro to Electromagnetic Waves (how EM waves are created, Poynting vector)
by PhysicsOMG
27 views
08:20

GCSE Physics - Electromagnetic Waves #64
by Cognito
37 views
04:52

Electromagnetic Waves
by Bozeman Science
31 views
04:03

Electromagnetic Waves
by Physics Videos by Eugene Khutoryansky
32 views

07:40

What is an Electromagnetic Wave?

by Physics Made Easy

30 views

03:41

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If a lightyear is defined as the distance light travels in one year, what do you think a light minute is? 1) If Mars is 12 light-minutes away, how far away is it in meters? 2) How long would it take to send a radio transmission to Mars?

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the magnetic field amplitude of an electromagnetic wave that has electric field amplitude ?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A lightbulb emits light uniformly in all directions. What is the electric field amplitude away from the lightbulb?

7 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Alice observes an electric field,

, and a magnetic field

. Bob is cruising by, with velocity

, in Alice's reference frame. What electric field does Bob observe?

5 views

The Electromagnetic Spectrum

8 videos | 1 question

VIDEOS

Anderson Video - Electromagnetic Spectrum

by Professor Anderson

32 views

10:43

What is the ELECTROMAGNETIC SPECTRUM

by MooMooMath and Science

24 views

02:46

The Electromagnetic Spectrum

by Patrick Ford

1

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46 views

10:08

Electromagnetic Spectrum Explained - Gamma X rays Microwaves Infrared Radio Waves UV
Visible Light

by The Organic Chemistry Tutor

32 views

16:33

Electromagnetic Radiation

by Bozeman Science

25 views

03:02

What is the Electromagnetic Spectrum?

by MonkeySee

33 views

02:13

ELECTROMAGNETIC SPECTRUM

by 7activestudio

28 views

02:55

What is Light? Maxwell and the Electromagnetic Spectrum

by Professor Dave Explains

28 views

03:56

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Which of the following types of electromagnetic waves has the longest wavelength?

5 views

Energy Carried by Electromagnetic Waves

13 videos | 5 questions

VIDEOS

Anderson Video - Intensity of the Sun Example

by Professor Anderson

16 views

06:16

Anderson Video - Electromagnetic Energy
by Professor Anderson
13 views
07:13

Anderson Video - Radiation Pressure
by Professor Anderson
18 views
13:53

Energy Carried by Electromagnetic Waves
by Patrick Ford
2
commentsIcon
1
rankIcon
55 views
08:18

Anderson Video - Intensity
by Professor Anderson
26 views
04:52

Anderson Video - Burning Holes with Sunlight
by Professor Anderson
16 views
05:31

phys2B ch24.4 The Energy Carried by Electromagnetic Waves
by Leila Jewell
32 views
06:15

Energy Density of Electromagnetic Waves
by Andrey K

20 views
08:39

The Energy Carried by Electromagnetic Waves
by z physics
23 views
04:29

The Energy Carried by Electromagnetic Waves
by Diana Driscoll
32 views
04:53

21.4 Energy, Power, and Intensity of Electromagnetic Waves
by Chad's Prep
15 views
04:04

Energy Density of Electromagnetic Waves (Light) | Doc Physics
by Doc Schuster
16 views
06:44

University Physics Lectures, Rate of Energy Transfer by Sinusoidal Waves on Strings
by Jose Menchaca
34 views
07:04
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 100 W lightbulb actually emits around only 10 W of light. What is the intensity of the light 1 cm away if the light is emitted perfectly spherically? What is the magnitude of the electric field emitted by the lightbulb? What about the magnetic field?

25 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a certain star has a temperature of At what wavelength will this star emit the most energy?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

A light bulb emits light uniformly in all directions. What is the electric field amplitude away from the light bulb?

11 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

What is the average magnitude of the Poynting vector for an electromagnetic wave with magnetic field amplitude equal to ?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

At one instant, an electromagnetic wave has a Poynting vector in the positive x direction and a magnetic field in the negative z direction. What is the direction of the electric field?

12 views

Electromagnetic Waves as Sinusoidal Waves

8 videos | 1 question

VIDEOS

Sinusoidal Electromagnetic Wave Example

by Prof_Clark

60 views

02:52

Physics 50 E&M Radiation (24 of 33) E & B Field on an E & M Wave

by Michel van Biezen

13 views

08:34

Example - Finding the Amplitude and Wavelength of the Electric Field of an Electromagnetic Wave

by Melvin Vaughn

29 views

05:46

Electromagnetic Waves as Sinusoidal Waves

by Patrick Ford

3

commentsIcon

27 views

07:10

Example - Determining the Electric Field of an Electromagnetic Wave, Part 1 of 3

by Melvin Vaughn

25 views

06:58

Sinusoidal Electromagnetic Wave Example

by Prof_Clark

18 views

02:52

8.1.3 Sinusoidal Waves

by Real Physics

23 views

07:38

Sinusoidal Expression Of Electromagnetic Waves

by Professor Brei

32 views

21:04

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

At one point in an otherwise empty space, an electromagnetic wave has a magnetic field strength of μ . What is the speed of this wave?

10 views

Polarization Filters

11 videos | 3 questions

VIDEOS

Anderson Video - Polarization

by Professor Anderson

14 views

04:04

Anderson Video - Polarizer

by Professor Anderson

9 views

06:25

Physics - Optics: Polarization (3 of 5) Three Polarizers

by Michel van Biezen

19 views

03:11

Polarization Filters

by Patrick Ford

2

commentsIcon

1

rankIcon

34 views

10:35

Polarized Light and Polarized Filters

by The Physics Classroom

20 views

09:04

Intro to Polarization Filters! or...why are those sunglasses so expensive? | Doc Physics

by Doc Schuster

19 views

07:14

How polarising filters work? | Polarization of light | Floatheadphysics

by FloatHeadPhysics

19 views

14:33

Polarization of Electromagnetic Waves — Lesson 5

by EMViso

42 views

01:08

25 - EM waves - Polarization

by Cogverse Academy

25 views

05:09

Polarization of Light: circularly polarized, linearly polarized, unpolarized light.

by Physics Videos by Eugene Khutoryansky

25 views

19:51

Initially Vertically Polarized Light

by Patrick Ford

4

commentsIcon

1

rankIcon

27 views

03:38

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In each of the following cases, initially vertically polarized light enters the polarizing apparatus with the same initial intensity. Which polarizing apparatuses will cause the light to exit with the largest intensity, 90° from its initial polarization? a) A single polarizing filter, oriented 90° from the vertical b) Two polarizing filters, the first 45° from the vertical and the second 90° from the vertical c) Two polarizing filters, the first 60° from the vertical and the second 90° from the vertical d) Two polarizing filters, the first 30° from the vertical and the second 90° from the vertical.

3

commentsIcon

29 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Vertically polarized light of intensity I_0 strikes a polarizing filter with its axis tilted clockwise from vertical. What is the intensity of the transmitted light?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Unpolarized light strikes a polarizing filter. It then passes through a second polarizer. The axis of the second polarizer is tilted 45° from the axis of the first. If the intensity of light emerging from the second polarizer is $I_0/2$, what intensity does the light have as it strikes the first polarizer?

6 views

Displacement Current and Maxwell's Equations

9 videos | 2 questions

VIDEOS

Anderson Video - Electromagnetic Wave Propagation Vector

by Professor Anderson

21 views

08:22

Physics - E&M: Maxwell's Equations (27 of 30) Diff. Form of Ampere's Law: Displacement Current

by Michel van Biezen

17 views

08:39

Displacement Current derivation (best explanation)

by CONCEPT BOOSTER

36 views

09:23

Displacement Current and Maxwell's Equations

by Patrick Ford

3

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94 views

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Displacement Current (Maxwell's Equations) | Electrodynamics

by Pretty Much Physics

29 views

01:50

Displacement Current & Maxwell's Equations

by Professor Brei

33 views

17:52

Displacement Current & Maxwell's Equations

by Electric and Magnetic Fields

21 views

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Maxwell's Equations, Electromagnetic Waves, Displacement Current, & Poynting Vector -
Physics

by The Organic Chemistry Tutor

40 views

17:39

Derivation of Electromagnetic Waves from Maxwell's Equations

by Andrey K

31 views

23:10

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

What is the displacement current in a parallel plate capacitor with circular plates of area ,
separated by μ , when the electric field in the capacitor is changing at a rate of ?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A tetrahedron exists in space. The magnetic flux through 3 of its sides is , , and , respectively.

What is the magnetic flux through the fourth side?

8 views

33. Geometric Optics

Ray Nature Of Light

5 videos | 2 questions

VIDEOS

Anderson Video - Geometric Optics Intro

by Professor Anderson

20 views

03:38

VIDEO 1: The Ray Model of Light & Reflection

by Graeme Low

30 views

03:33

Science Prep Course Physics: Lesson 2 - Ray Model of Light

by BVC Upgrading

24 views

07:06

Introduction: Ray Model of Light

by Physics and Astronomy Videos

28 views

03:51

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A small light source is casting your shadow on a large wall. Both you and the light are on a line normal to the wall. You are one-fourth of the way from the light to the wall. How wide is your shadow compared to your normal width?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

When light reflects off of a smooth surface, and rays that were initially parallel remain parallel, this is called...

10 views

Reflection Of Light

7 videos | 2 questions

VIDEOS

Anderson Video - Specular vs. Diffuse Reflection

by Professor Anderson

35 views

03:41

Anderson Video - Corner Cube Reflector

by Professor Anderson

12 views

07:54

The Law Of Reflection. Measuring the angle of incidence and angle of reflection.
by Mr E's Science Episodes
44 views
07:57

Reflection of Light
by Patrick Ford
1
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1
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35 views
05:09

REFLECTION OF LIGHT
by 7activestudio
52 views
02:57

VIDEO 1: The Ray Model of Light & Reflection
by Graeme Low
20 views
04:38

Hanging Mirror
by Patrick Ford
7
commentsIcon
1
rankIcon
28 views
04:04

PRACTICE
Multiple Choice XXXXXXXXXXXXXXXXXXXXX
What is the distance, d , between the incoming and outgoing rays?
3
commentsIcon
33 views
Multiple Choice XXXXXXXXXXXXXXXXXXXXX

When you look in your bathroom mirror in the morning, you see your reflection behind the mirror.
If you are standing from the mirror, how far are you from the image of you?

11 views

Refraction Of Light

6 videos | 6 questions

VIDEOS

[Huygen's principle of secondary waves | Wave optics](#)

Khan Academy India - English **

Anderson Video - Refraction of Light

by Professor Anderson

17 views

02:19

Refraction Explained

by Science Sauce

40 views

04:53

Refraction of Light

by Patrick Ford

1

commentsIcon

1

rankIcon

46 views

11:07

[Refraction of Light](#)

by The Organic Chemistry Tutor **

Snell's Law

by Patrick Ford

5

commentsIcon

1

rankIcon

63 views

07:14

Refraction Through Multiple Boundaries

by Patrick Ford

3

commentsIcon

1

rankIcon

33 views

09:35

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A light ray passes from air to glass, with an index of refraction of 1.5. If the light is blue, with a wavelength of 450 nm, what is the wavelength of the light ray after it passes into the glass?

4

commentsIcon

46 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Suppose a ray of light starts in air, then enters a slab of diamond with parallel faces, and then exits again. If the ray entered the diamond at an angle θ from a line normal to the diamond slab, what is true of the final angle from normal?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Light shines from a laser in air down into water. If the laser beam in air makes an angle of θ with the water's surface, what angle will it make with the surface under water?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A graduated cylinder is filled with $\frac{1}{2}$ of oil floating on $\frac{1}{2}$ of water. How long, in nanoseconds, does it take light to travel from the top of the oil to the bottom of the water?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A light ray, moving in air, is incident on a piece of plastic at an angle of 23° with respect to the normal. Inside the plastic the ray travels at an angle of 16° with respect to the normal. What is the index of refraction of the plastic?

13 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If oil is floating on water, what is the critical angle at the oil/water boundary?

12 views

Total Internal Reflection

4 videos | 1 question

VIDEOS

Anderson Video - Total Internal Reflection

by Professor Anderson

19 views

08:14

Total Internal Reflection of Light and Critical Angle of Refraction Physics

by The Organic Chemistry Tutor

30 views

10:20

Total Internal Reflection

by Patrick Ford

3

commentsIcon

63 views

07:48

Total internal reflection | Geometric optics | Physics | Khan Academy

by Khan Academy

47 views

07:55

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Most pools have an underwater light for swimming at night. If the underwater light is 1 m below the surface, for what area of the surface of the water are you able to see the light? Note that the refractive index of water is 1.33.

3

commentsIcon

29 views

Ray Diagrams For Mirrors

7 videos | 4 questions

VIDEOS

Anderson Video - Mirrors

by Professor Anderson

14 views

04:01

Ray diagrams for convex mirrors

by Swanson Does Science

40 views

04:59

Image formation by Concave Mirror

by Physics Galaxy

72 views

06:08

Ray Diagrams for Concave Mirrors

by Patrick Ford

2

commentsIcon

65 views

12:04

Ray Tracing for Concave and Convex Mirrors

by Physics Ninja

32 views

10:42

Ray Diagrams for Convex Mirrors

by Patrick Ford

2

commentsIcon

37 views

07:55

Ray Diagrams for Plane Mirrors

by Patrick Ford

39 views

06:06

PRACTICE

Open Question

Will an image be formed for an object placed inside the focus of a convex mirror? If so, where will it be formed?

2

commentsIcon

27 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Find the location of the virtual image produced by a convex mirror when the object is placed a distance less than the focal length from the surface of the mirror.

32 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You want to hang a plane mirror on your wall. If you want your entire body to fit into the mirror, what's the maximum height off the ground that the mirror must be? What is the smallest mirror you can buy? Consider yourself to be 1.55 m tall.

1

commentsIcon

30 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An object is in front of a concave mirror with a focal length of . What is the magnification of the image?

10 views

Mirror Equation

9 videos | 3 questions

VIDEOS

Anderson Video - Law of Reflection

by Professor Anderson

16 views

04:55

Anderson Video - Wall Mirror Question

by Professor Anderson

16 views

03:23

Anderson Video - The Mirror Equation

by Professor Anderson

20 views

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Mirror Equation

by Patrick Ford

4

commentsIcon

45 views

09:03

Anderson Video - Magnification

by Professor Anderson

13 views

05:21

Mirror equation example problems | Geometric optics | Physics | Khan Academy

by Khan Academy

32 views

11:00

Spherical Mirrors & The Mirror Equation - Geometric Optics

by The Organic Chemistry Tutor

34 views

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The Mirror Equation (Concave Mirrors)

by The Science Classroom

27 views

05:25

Object in Front of Convex Mirror

by Patrick Ford

3

commentsIcon

36 views

04:11

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 4 cm tall object is placed in 15 cm front of a concave mirror with a focal length of 5 cm. Where is the image produced? Is this image real or virtual? Is it upright or inverted? What is the height of the image?

2

commentsIcon

33 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You want to produce a mirror that can produce an upright image that would be twice as tall as the object when placed 5 cm in front of it. What shape should this mirror be? What radius of curvature should the mirror have?

3

commentsIcon

22 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An object is in front of a converging lens with a focal length of . Use ray tracing to determine the location of the image. Is the image upright or inverted?

12 views

Refraction At Spherical Surfaces

5 videos | 3 questions

VIDEOS

Anderson Video - Spherical Mirrors

by Professor Anderson

20 views

07:48

REFRACTION AT SPHERICAL SURFACE _ PART 01

by 7activestudio

24 views

03:50

Solved example: Curved surface refraction | Class 12 (India) | Physics | Khan Academy

by Khan Academy India - English

23 views

11:38

Refraction at Spherical Surfaces

by Patrick Ford

4

commentsIcon

43 views

05:51

Curved surface refraction formula | Class 12 (India) | Physics | Khan Academy
by Khan Academy India - English

31 views

13:08

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

An object is embedded in glass as shown in the following figure. If the glass has a concave face, and is embedded in water, where will the image be located? Will the image be real or virtual?

3

commentsIcon

39 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A student observes a goldfish in a flat sided aquarium. The goldfish observes the student. If the student observes that the image of the fish's nose is from the side of the tank, how far behind the glass is the nose of the fish?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

One side of a biconvex glass lens ($n=1.5$) has a radius of curvature of , while the other side has a radius of curvature of . What is its focal length?

7 views

Ray Diagrams For Lenses

15 videos | 4 questions

VIDEOS

Anderson Video - Image Formation with Spherical Mirrors

by Professor Anderson

19 views

08:17

Anderson Video - Optical Instruments- Eyeballs

by Professor Anderson

21 views

06:03

Anderson Video - Converging Lens Example

by Professor Anderson
15 views
07:12

Ray Diagrams for Converging Lenses
by Patrick Ford
2
commentsIcon
55 views
06:37

Anderson Video - Nearsighted vs. Farsighted
by Professor Anderson
38 views
06:28

Anderson Video - Camera Focus
by Professor Anderson
16 views
03:24

Anderson Video - Glasses
by Professor Anderson
14 views
03:51

Anderson Video - Inability to Focus Underwater
by Professor Anderson
12 views
05:38

Anderson Video - Magnifying Glass
by Professor Anderson
23 views
05:05

Anderson Video - Microscope

by Professor Anderson
17 views
04:50

Anderson Video - Telescope
by Professor Anderson
15 views
05:31

Anderson Video - Resolving Power of a Telescope
by Professor Anderson
12 views
07:53

Ray Diagrams (4 of 4) Concave Lens and Convex Mirror
by Step by Step Science
20 views
05:32

Ray Diagrams (2 of 4) Convex Lens
by Step by Step Science
22 views
12:32

Ray Diagrams for Diverging Lenses
by Patrick Ford
2

commentsIcon
97 views
06:12

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If an object is placed within the focus of a converging lens (it's at a distance of less than the focal length), will a real image form? If so, does it form at a distance less than or greater than the focal length?

3

commentsIcon

31 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

If an object is placed within the focus of a diverging lens (it's at a distance of less than the focal length), where will the image form? If so, does it form at a distance less than or greater than the focal length?

21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

An object is in front of a diverging lens with focal length f . Where is the image located?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A tall object is in front of a diverging lens with focal length f . What is the height of the image and is it upright or inverted?

8 views

Thin Lens And Lens Maker Equations

16 videos | 1 question

VIDEOS

Anderson Video - Lenses

by Professor Anderson

17 views

05:09

Anderson Video - Thin Lens and Image Formation

by Professor Anderson

20 views

05:17

Anderson Video - Thin Lens Image Formation

by Professor Anderson

28 views

04:07

Thin Lens Equation

by Patrick Ford

6

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44 views

07:58

Anderson Video - Power of a Lens
by Professor Anderson
22 views
03:40

Anderson Video - Diverging Lens
by Professor Anderson
20 views
03:17

Anderson Video - Thins Lens Equation
by Professor Anderson
21 views
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Anderson Video - Contact Lens Example
by Professor Anderson
16 views
08:25

Physics - Optics: Lensmaker's Equation (5 of 5) Vision Correction Lens (Glasses)
by Michel van Biezen
51 views
02:39

Physics - Optics: Lensmaker's Equation (4 of 5)
by Michel van Biezen
30 views
02:13

Physics - Optics: Lensmaker's Equation (1 of 5)
by Michel van Biezen
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Thin Lens Equation, Optics, Converging Lens & Diverging Lens - Physics
by The Organic Chemistry Tutor

52 views
11:48

Thin lens equation and problem solving | Geometric optics | Physics | Khan Academy
by khanacademymedicine
38 views
12:56

Lens Maker Equation
by Patrick Ford
7
commentsIcon
48 views
05:38

What Types of Images Can be Formed by Lenses?
by Patrick Ford
30 views
03:25

Image Formation by a Biconcave Lens
by Patrick Ford
6
commentsIcon
46 views
04:34

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A biconvex lens has a focal length of 12 cm. If an object is placed 5 cm from the lens, where is the image formed? Is it real or virtual? Is it upright or inverted? What's the height of the image if the object is 2 cm tall?

1
commentsIcon
28 views

34. Wave Optics
Diffraction
2 videos | 6 questions
VIDEOS

[Blue Sky and Red Sunsets](#)

by ck-12 **

Apertures and Diffraction - Exploring Wave Motion (3/5)

by OpenLearn from The Open University

21 views

02:39

Diffraction

by Patrick Ford

4

commentsIcon

49 views

08:44

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A diffraction grating with d is illuminated by two wavelengths of light: λ_1 and λ_2 . What is the distance between the bright fringes of the two colors of light on a screen L away?

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A diffraction grating has N slits. If it is illuminated by a laser at λ , how many bright spots will be observed on a screen placed behind the grating?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A particular kind of oil with an index of refraction of n has spilled on water. The different thicknesses of the oil slick result in different colors being strongly reflected at different parts of the spill. But near the edges, you identify the thinnest part of the oil layer that strongly reflects green light with a wavelength of 550 nm when you are directly overhead. What is the thickness of the oil at this point? Assume light is incident normal to the oil surface.

10 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

You place one glass slide on top of another, with an animal hair between them at one end. You illuminate the slides with blue light of wavelength λ . You count along the slide and find 300 transitions from bright to dark and back to light. How thick is the hair?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A carbon dioxide laser produces λ electromagnetic waves, which pass through a circular aperture with diameter D . What is the approximate width of the laser beam when it strikes a target away?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

A light is used to illuminate a diffraction grating with . What is the angle, measured from the central maximum, to the $m=3$ bright fringe?

10 views

Diffraction with Huygen's Principle

4 videos | 1 question

VIDEOS

Huygens Principle - Physics

by The Organic Chemistry Tutor

34 views

01:39

Diffraction and Huygens's Principle - IB Physics

by Andy Masley's IB Physics Lectures

40 views

03:42

Single slit interference | Light waves | Physics | Khan Academy

by khanacademymedicine

44 views

15:00

Diffraction with Huygen's Principle

by Patrick Ford

2

commentsIcon

1

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65 views

14:47

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXXX

A diffraction grating has . If it is illuminated by a laser at , how many bright spots will be observed on a screen placed behind the grating?

6 views

Young's Double Slit Experiment

7 videos | 5 questions

VIDEOS

Anderson Video - Double-Slit Interference Example
by Professor Anderson
25 views
12:15

Thomas Young's Double Slit Experiment
by MITK12Videos
28 views
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Young's double slit Experiment explained
by PhysicsHigh
62 views
08:52

Young's Double Slit Experiment
by Patrick Ford
8
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74 views
12:01

Young's Double Slit Experiment
by The Organic Chemistry Tutor
34 views
17:25

Young's double slit introduction | Light waves | Physics | Khan Academy
by khanacademymedicine
30 views
09:33

Unknown Wavelength of Laser through Double Slit

by Patrick Ford

2

commentsIcon

1

rankIcon

42 views

05:42

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 450 nm laser shines light through a double slit of 0.2 mm separation. If a screen is placed 4 m behind the double slit, how wide are the bright fringes of the diffraction pattern?

6

commentsIcon

16 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A 532 nm laser illuminates a pair of slits separated by . What is the angular separation, in degrees, between the and bright fringes?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In a two-slit experiment, laser light of wavelength passes through a pair of slits separated by . If the observing screen is from the slits, what is the separation, in mm, between the bright fringes?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

A laser illuminates a pair of slits separated by μ . What is the angular separation, in degrees, between the $m = 1$ and $m = 2$ bright fringes?

9 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In a two-slit experiment, laser light of wavelength passes through a pair of slits separated by μ . If the observing screen is from the slits, what is the separation, in mm, between the bright fringes?

5 views

Single Slit Diffraction

7 videos | 6 questions

VIDEOS

Anderson Video - Single-Slit Diffraction

by Professor Anderson

24 views
03:03

Anderson Video - Single-Slit Diffraction Example
by Professor Anderson
24 views
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Topic 9.2 - Single-slit Diffraction
by rowlandphysics
19 views
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Single Slit Diffraction
by Patrick Ford
4
comment icon
33 views
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Single Slit Diffraction - Physics Problems
by The Organic Chemistry Tutor
78 views
10:44

Physics - Optics: Single Slit Diffraction (1 of 15) Basics
by Michel van Biezen
29 views
05:22

Number of Dark Fringes on a Screen
by Patrick Ford
8
comment icon
33 views
09:05
PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

Light from a 600 nm laser is shown through a single slit of unknown width. If a screen is placed 4.5 m behind the slit captures a diffraction patten with a central bright fringe of width 20 mm, what is the width of the single slit?

1

commentsIcon

21 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A single slit is illuminated by coherent monochromatic light at . On a screen behind the slit, a central bright spot is observed to have a width of . What is the width of the single slit?

12 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A carbon dioxide laser produces μ electromagnetic waves, which pass through a circular aperture with diameter . What is the approximate width of the laser beam when it strikes a target away?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXXXX

A single slit is illuminated by coherent monochromatic light at . On a screen behind the slit, a central bright spot is observed to have a width of . What is the width of the single slit?

5 views

35. Optical Instruments

[Physics 59 Optical Instruments \(3 of 20\) The Microscope](#)
[Michel van Biezen](#)

[Physics 59 Optical Instruments \(2 of 20\) The Telescope](#)
[Michel van Biezen](#)

36. Special Relativity

Inertial Reference Frames

5 videos | 2 questions

VIDEOS

Anderson Video - Inertial Frames of Reference

by Professor Anderson

45 views

06:33

Inertial Vs. Non inertial frames of reference

by dizaui

38 views

05:57

Frames of Reference (1960) [part 2 of 2]

by Paul Schonfeld

35 views

14:00

Inertial Reference Frames

by Patrick Ford

6

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46 views

14:10

Frames of Reference (1960) [part 1 of 2]

by Paul Schonfeld

41 views

13:27

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Which of the following is a reasonable approximation of an inertial reference frame?

6 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Leroy is standing 900 m from firecracker A and 600 m from firecracker B. After exploding, the light from both firecrackers arrives at Leroy at the same time. In Leroy's frame of reference, which firecracker exploded first, or were they simultaneous?

11 views

Special Vs. Galilean Relativity

4 videos | 3 questions

VIDEOS

Relativistic Addition of Velocity | Special Relativity Ch. 6

by minutephysics

34 views

05:07

Special Relativity Part 1: From Galileo to Einstein

by Professor Dave Explains

27 views

05:49

What is relativity all about?

by Fermilab

45 views

11:49

Special Vs. Galilean Relativity

by Patrick Ford

2

commentsIcon

37 views

17:25

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Jill can throw a ball at a speed of 80 mph, consistently, on the ground. She gets into the back of a truck, which drives down the road in the direction at 30 mph. Jill faces the back of the truck and throws a ball. According to Galilean relativity, what is the component of the velocity of the ball relative to the ground?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Sam is cruising in his spaceship moving at . Suzy is directly in front of Sam and is at rest. Suzy flashes her headlights at Sam, hoping he will slow down. According to Sam, how fast is the light from Suzy's headlights moving as it approaches him?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Olive the astronaut is flying her spaceship back home to earth at . Her spaceship has lights on it; one at the front of her ship, and one at the back of the ship. Olive notes that the two lights flash simultaneously. Are they simultaneous according to an Earth-based observer? If not, which one blinked first?

5 views

Consequences of Relativity

17 videos | 6 questions

VIDEOS

Anderson Video - Relativistic Momentum

by Professor Anderson

13 views

08:41

Anderson Video - Length Contraction Example

by Professor Anderson

24 views

09:05

Anderson Video - Simultaneity and Relativity

by Professor Anderson

26 views

03:38

Time Dilation

by Patrick Ford

2

commentsIcon

34 views

12:57

Anderson Video - Time Dilation

by Professor Anderson

18 views

04:13

Anderson Video - Length Contraction

by Professor Anderson

39 views

04:31

Anderson Video - Relativistic Energy

by Professor Anderson

19 views

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Anderson Video - Accelerating a Proton Relativistically
by Professor Anderson
19 views
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Anderson Video - Einstein's Velocity Addition Rule
by Professor Anderson
24 views
03:58

Theory of relativity explained in 7 mins
by LondonCityGirl
64 views
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Neil deGrasse Tyson Explains Time Dilation
by StarTalk
60 views
10:41

Special Relativity Part 3: Length Contraction
by Professor Dave Explains
32 views
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Length Contraction and Time Dilation | Special Relativity Ch. 5
by minutephysics
45 views
07:17

Time Dilation for a Muon from the Atmosphere
by Patrick Ford
3
commentsIcon
23 views
04:32

Length Contraction

by Patrick Ford

1

commentsIcon

38 views

07:02

Length Contraction for a Muon from the Atmosphere

by Patrick Ford

1

commentsIcon

25 views

07:37

Proper Frames and Measurements

by Patrick Ford

2

commentsIcon

17 views

07:49

PRACTICE

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

The international space station travels in orbit at a speed of 7.67 km/s. If an astronaut and his brother start a stop watch at the same time, on Earth, and then the astronaut spends 6 months on the space station, what is the difference in time on their stopwatches when the astronaut returns to Earth? Note that 6 months is about 1.577×10^7 s, and $c = 3 \times 10^8$ m/s.

1

commentsIcon

19 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

In the following figure, a right triangle is shown in its rest frame, S' . In the lab frame, S , the triangle moves with a speed v . How fast must the triangle move in the lab frame so that it becomes an isosceles triangle?

1

commentsIcon

16 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Carol is in the same reference frame with a clock. Bianca is flying past Carol and her clock at a high speed. Bianca sees Carol's clock ticking at one quarter the rate that Carol sees. How fast is Bianca flying relative to Carol?

8 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

Carl is standing in a park 1000 m across. Rohan flies over the park at a very high speed, first passing over the east end of the park, and then passing over the west end. Carl and Rohan are discussing the time interval between when Rohan passed over the east end of the park and when he passed over the west end of the park. Who measured the proper time?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

According to Olive, her new super-speeder space yacht is long. Lennon is on Earth watching Olive approaching at . How long is Olive's space yacht according to Lennon?

5 views

Multiple Choice XXXXXXXXXXXXXXXXXXXXX

As seen from a distant planet, ships A and B fly toward each other, with ship A having a speed of . and ship B having a speed of . According to the pilot of ship A, how fast is ship B approaching?

4 views

Lorentz Transformations

5 videos | 5 questions

VIDEOS

Evaluating a Lorentz transformation | Special relativity | Physics | Khan Academy

by Khan Academy

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PRACTICE

All students will stay in period 6 today for FLEX.

As a reminder this is to get a better handle on our FLEX periods, we are going to take a mid-year reset.

This will help us to clarify expectations and hopefully provide more structure for the rest of the year.

To make FLEX block time successful it will take ALL of us to work together and use this time appropriately, so:

- Starting on Tuesday, February 28th - all students will remain in the class that meets before FLEX (e.g. on Day 7 students stay in period 7, on Day 1 students stay in period 1, etc.).
 - Staff should review with students how to sign up for FLEX, discuss the [FLEX Handbook](#), answer questions, and make sure all staff has their FLEX options loaded into MyFlex for the rest of the year.
 - I would like to thank our colleague, Meredith Palmer, for presenting this idea to ILT
 - During this two-week period administrators will be in core academic hallways to be available for support and to answer any questions.
- After the two-week period (beginning March 14th) students can begin to sign up again for FLEX but must show their teacher that they have signed up in order to leave the class.
 - On March 7th seniors will still report to their scholarship informational session in the auditorium
 - After this two-week period, if any staff believes there are students in any class who may need extra attention or instruction please let your department head and/or administration know.

- Beginning on March 14th we will continue to use the stay in the class approach that meets prior to FLEX as outlined above. However, if a student shows their teacher that they have signed up for a FLEX activity they can leave the classroom to attend that particular session.
 - If a student is not signed up for a FLEX session, they will remain in their class as a quiet study during FLEX time.