Conceptual Physics B Exam Review

Topics/Units:
2D Motion
Rotation
Electric Circuits
Electric Charge/Forces
Optics
Waves/Oscillations

1. The shape an object's motion in projectile motion is called the:

1. _____

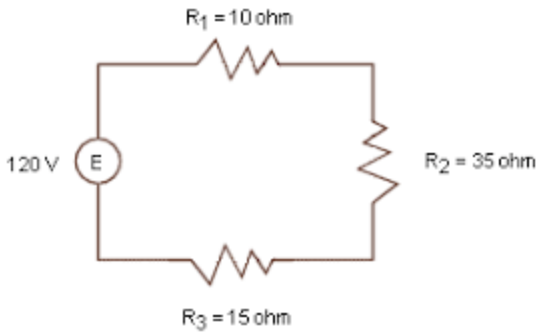
2. A golf ball is hit at an angle of 64°. It travels a distance of 70 *m* in the air. At what other angle must the ball be hit to travel 70 *m* in the air?

2. _____

3. The motion of electric charges in an electrical circuit is called:

3. _____

4. Determine the current in the circuit drawn below.



4. _____

5. Determine the voltage drop (used) by each resistor in the circuit drawn above.

5. 10 Ohm: _____

35 Ohm: _____

15 Ohm: _____

6. Which item uses the most current when plugged in to a standard household 120-volt outlet: An 800 *W* toaster, a 1000 *W* microwave, or a 1200 *W* hair dryer?

6. _____

7. Determine the electrostatic force between a 3 *C* and a 4 *C* charge placed 5 *m* apart.

7. _____

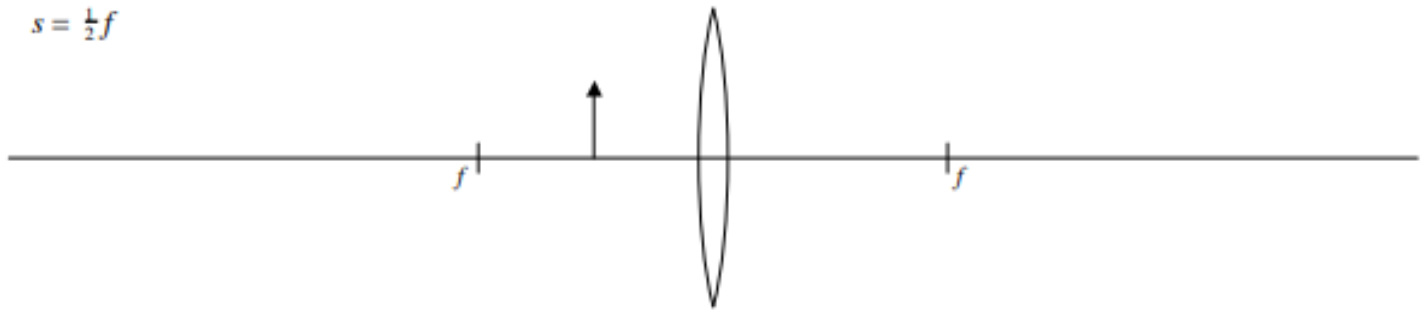
8. Which color of the rainbow uses the least amount of energy?

8. _____

9. Which type of reflection is most prominent when you can see the sun reflecting off the surface of a lake?

9. _____

10. Draw a ray diagram for the object below. Then, circle the correct choices that describe the image.



Real or **Virtual** **Larger** or **Smaller** **Upright** or **Inverted**

1. A soccer ball is kicked from the ground. What launch angle will give the soccer ball its maximum range?

1. _____

2. The wheels on your car spin around 500 times in 2 minutes. Determine the angular speed of the wheels.

2. _____

3. Which circuit elements use the electrical energy provided by the batteries?

3. _____

4. My George Foreman grill draws 6 A of current when plugged in to the 120 V wall outlet. Determine the resistance of the grill.

4. _____

5. Explain how the current in a series circuit is different than the current in a parallel circuit.

5. _____

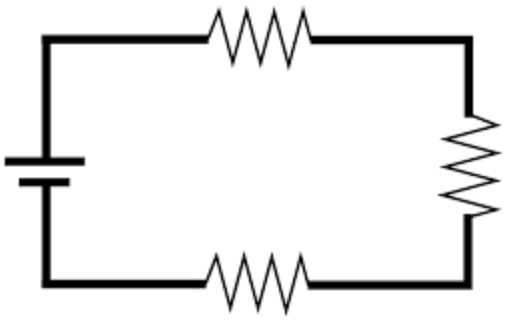
6. Explain how the voltage in a series circuit is different than the voltage in a parallel circuit.

6. _____

7. Explain how resistance in a series circuit is different than resistance in a parallel circuit

7. _____

8. Which direction does the conventional current flow in the circuit below?



8. _____

9. List the three additive primary colors

9. _____

_____

_____

10. Which of the two additive primary colors listed above need to be mixed to create cyan?

10. _____

_____

11. Identify the colors that need to be mixed to create white light.

11. _____

12. A shirt appears black. Explain what the shirt does to light that touches it.

12. _____

13. Identify the appropriate units for each quantity listed below:

Electric Potential (Voltage): _____

Current: _____

Resistance: _____

Force: _____

Power: _____

Energy: _____

Charge: _____

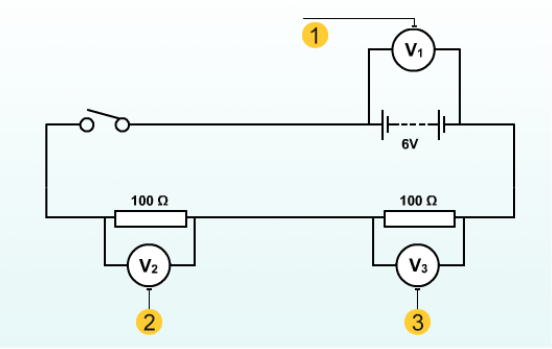
1. What is the range of a projectile called?

1. _____

2. An object is being spun in a circle. In which direction does the centripetal force act on this object?

2. _____

3. Voltmeter 1 reads 6 *V*. What will voltmeters 2 and 3 read when the switch is closed?



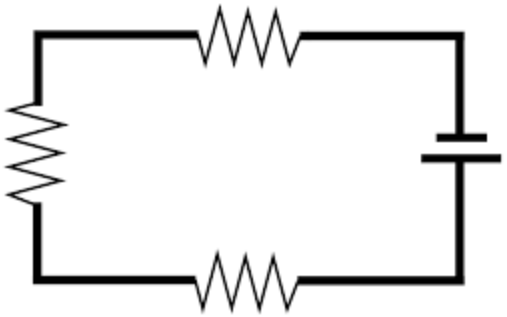
3. _____

4. The stereo in your car is connected to the car's 12 *V* battery. If the stereo uses 0.5 *A* of current, what is the resistance of the stereo?

4. _____

5. Explain why it makes sense for our homes to have parallel circuit wiring instead of series circuit wiring.

6. Which direction does the conventional current flow in the circuit below? What about the electrons?



6. Conventional Current: _____

Electrons: _____

7. What is the primary function of a capacitor?

7. _____

8. What does capacitance measure?

8. _____

9. List the three factors that determine the capacitance of a capacitor.

9. _____

_____

_____

10. List the subtractive primary colors

10. _____

_____

_____

11. Which colors need to be mixed to make a green pigment?

11. _____

1. A ball is thrown horizontally at 10 *m/s*. Its range after 3 *s* is:

1. _____

2. What do we call the path of an object as it revolves around another?

2. _____

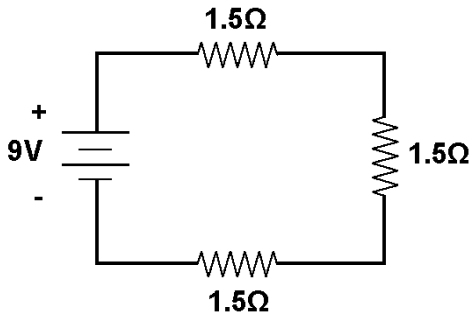
3. What do we call material that have valence electrons?

3. _____

4. What do we call material that does not allow current to easily flow?

4. _____

5. Determine the current in the circuit below.



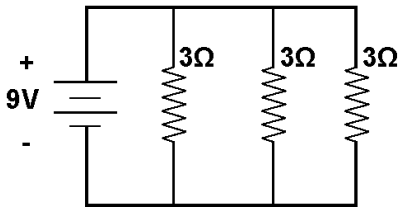
5. _____

6. Do light bulbs get brighter, dimmer, or stay the same if we add bulbs to a series circuit? What about a parallel circuit?

6. Series: _____

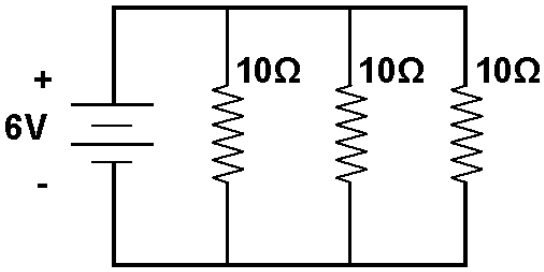
Parallel: _____

7. Determine the voltage across each resistor.



7. _____

8. Determine the current through each resistor



8. _____

9. If we triple the distance between two charges, by what factor does the force change?

9. _____

10. Which type of charges do negative charges attract? Repel?

10. Attract: _____

Repel: _____

11. What are the physics terms for bending and bouncing light?

11. Bending: _____

Bouncing: _____

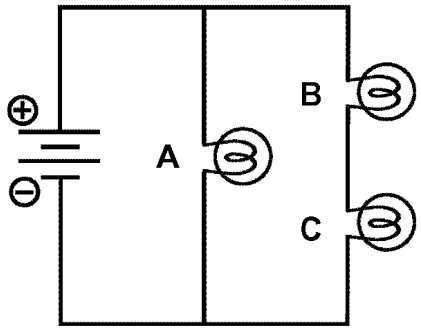
12. An object that appears green in natural light is illuminated with red light. What color will the object appear?

12. _____

13. An object that appears yellow in natural light is illuminated with red light. What color will the object appear?

13. _____

Questions 14 - 16: Current is flowing through the closed circuit shown below. Assume each bulb has the same resistance, and therefore, the same brightness.



14. How would the brightness of bulbs B & C change if A was unscrewed? Brighter, dimmer, stay the same, or turn off?

14. B: _____

C: _____

15. How would the brightness of bulbs A & C change if B was unscrewed? Brighter, dimmer, stay the same, or turn off?

15. A: _____

C: _____

16. What would happen to the brightness of each bulb if we doubled the resistance of bulb B?

16. A: _____

B: _____

C: _____