

Physics Part B Final Exam Study Guide

You've made it to the final exam! Yay! The format is 28 multiple choice questions (similar to the Module Exams). I have included a study guide of must-know concepts below. General good practice would be to go back over all of your multiple choice quizzes in the modules and make sure you understand the correct answers.

Also, please be sure to have **your official Formula Sheet printed**. You can find it in the Course Resources Folder, under "General Science Resources". You may use this equation sheet and a calculator when you take the exam.

- Relationship between angle of incidence and angle of reflection, using the equation for index of refraction
- Figuring out number of protons, electrons, and neutrons a neutral atom has
- Analyzing photoelectric effect graphs, finding the work function
- Definition of isotopes, using the atomic notation to determine how many neutrons are in an isotope
- What is the resistance of a wire dependent upon?
- Direction of charge flow in a simple circuit
- How adding resistors changes overall resistance in series vs parallel circuits
- Voltage and current in series circuits vs parallel circuits
- Converting degrees Celsius to degrees Kelvin
- Analyzing energy of a cart moving along a roller coaster, definition of kinetic energy, gravitational potential energy, and conservation of energy
- What does the area under a force vs displacement graph represent?
- Understanding the different types of decay: beta, alpha, gamma, half-life
- Calculating wavelength, or frequency, given wave speed (using the wave speed equation)
- Analyzing a half-life graph of radioactive decay
- Analyzing a ray diagram of a lens or mirror to determine image location, using the image and focal distance equations
- What makes metal a good electrical conductor?
- Calculating work done
- Calculating heat transfers (Q equations)
- Definition of "heat" and "temperature" in physics
- Using a heating/cooling graph to determine boiling point, average kinetic energy, and latent heat of vaporization
- Using the electrical force equation
- What was the purpose/main idea of the Rutherford gold foil experiment?

- Calculations using the electric field equation for a test charge
- Relationship between interference pattern and distance between the slits
- Using the Doppler effect to figure out if someone hears a higher or lower pitch as an object moves away or towards them
- Calculating power from work done
- Definition of Kirchoff's rules
- Determining the observed speed of light given the index of refraction
- Calculating the period of a pendulum using the pendulum equation
- Definition of capacitance