

Test 2 will cover the material presented in modules 7 - 12.

You should be able to

- Use the relationship between force and pressure.
 - Describe how pressure in a liquid changes with depth.
 - Calculate the buoyant force on an object using Archimedes' principle.
 - Analyze fluid flow using Bernoulli's equation.
 - Characterize laminar viscous flow using Poiseuille's law.
 - Distinguish between laminar and turbulent flow.
 - Describe what characterizes turbulent flow.
 - Convert between various temperature scales.
 - Use the ideal gas law to relate pressure, volume, and temperature of a gas.
 - Calculate the amount of thermal expansion of solids and liquids due to a change in temperature.
 - Describe the characteristics of different types of heat transfer mechanisms.
 - Use the law of heat conduction to solve heat-flow problems.
 - Work problems involving the specific heat capacity of a substance.
 - Calculate the amount of heat transferred to or from a substance during phase transitions.
 - Define relative humidity.
 - Define adiabatic, isobaric, isothermal and isometric processes.
 - State the second law of thermodynamics in various ways.
 - Apply the second law of thermodynamics to find the maximum possible efficiency of heat engines.
 - Calculate the maximum coefficient of performance of a heat pump or a refrigerator.
 - Define changes in entropy and to explain the connection between entropy and disorder.
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- Work problems concerning the motion of objects exhibiting simple harmonic motion.
 - Describe transverse and longitudinal harmonic waves mathematically and give the relation between wavelength, frequency, and speed.
 - Analyze standing waves on a string and standing sound waves in tubes with one or two open ends.
 - Qualitatively describe water waves, tsunamis, and tides.
 - Find the Doppler shifted frequency the observer measures when source or observer are in motion.