

Ch. 13 Section 1 Practice Quiz

Section: Work, Power, and Machines

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. The transfer of energy to a body by the application of a force that causes the body to move in the direction of the force is called
- a. power.
 - b. work.
 - c. distance.
 - d. mechanical advantage.
- _____ 2. A boy exerts an average force of 65 N when he lifts a box 1.2 meters. How much work does he do?
- a. 0 J
 - b. 54 J
 - c. 66 J
 - d. 78 J
- _____ 3. _____ is defined as the rate at which work is done.
- a. Power
 - b. Joule
 - c. Speed
 - d. Mechanical advantage
- _____ 4. How much power is required to do 180 J of work in 2.4 s?
- a. 7.5 W
 - b. 75 W
 - c. 178 W
 - d. 430 W
- _____ 5. How much power is required to lift a 30.0 N chair 0.20 m in 2.0 s?
- a. 1.0 W
 - b. 3.0 W
 - c. 12 W
 - d. 15 W
- _____ 6. Calculate the mechanical advantage of a wrench that allows you to move a bolt 0.01 m by moving the handle 0.50 m.
- a. 0.05
 - b. 0.50
 - c. 5.0
 - d. 50
- _____ 7. A ramp is a _____ that decreases the force required to move an object while increasing the distance the object travels.
- a. force
 - b. load
 - c. newton
 - d. machine
- _____ 8. What is the mechanical advantage of a ramp 2.0 m long and 0.50 m tall?
- a. 1.0
 - b. 2.5
 - c. 4.0
 - d. None of the above
- _____ 9. A pulley with a mechanical advantage of 5.00 is used to lift a bucket weighing 285 N. How much force must be used to lift the bucket?
- a. 57.0 N
 - b. 280 N
 - c. 285 N
 - d. 1,425 N
- _____ 10. Lifting a car using a car jack is easier because it requires
- a. less force.
 - b. less work.
 - c. less time.
 - d. None of the above

Ch. 13 Section 2 Practice Quiz

Section: Simple Machines

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. What are the two families of simple machines?
a. wedge and compound c. inclined plane and lever
b. first class and second class d. pulley and screw
- _____ 2. Levers are divided into _____ classes based on the location of the fulcrum and of the input and output forces.
a. two c. four
b. three d. five
- _____ 3. A wedge is a modified
a. wheel and axle. c. inclined plane.
b. pulley. d. lever.
- _____ 4. A ramp is a simple inclined plane that allows one to apply an input force _____ the output force.
a. perpendicular to c. greater than
b. equal to d. less than
- _____ 5. Which of the following is an example of a compound machine?
a. scissors c. wheel and axle
b. ax blade d. screw
- _____ 6. What is the mechanical advantage of a single, fixed pulley?
a. 0.5 c. 2
b. 1 d. 4

In the space provided, write the letter of the term or phrase that best matches each description.

- _____ 7. a lever or pulley connected to a shaft
a. block and tackle
b. wheelbarrow
c. wheel and axle
d. screw
- _____ 8. an example of a second-class lever
a. block and tackle
b. wheelbarrow
c. wheel and axle
d. screw
- _____ 9. an inclined plane wrapped around a cylinder
a. block and tackle
b. wheelbarrow
c. wheel and axle
d. screw
- _____ 10. multiple pulleys put together in a single unit
a. block and tackle
b. wheelbarrow
c. wheel and axle
d. screw

Ch. 13 Section 4 Practice Quiz

Section: Conservation of Energy

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- _____ 1. At the top of its arc, a thrown ball has _____ potential energy.
a. maximum c. zero
b. minimum d. average
- _____ 2. As a dropped penny falls toward the ground, _____ energy is converted to _____ energy.
a. thermal, potential c. kinetic, heat
b. kinetic, vibrational d. potential, kinetic
- _____ 3. A dropped racquetball will not return to its original position because
a. potential energy is inefficient.
b. the mechanical energy is stored up for later bounces.
c. some of the mechanical energy is converted to nonmechanical energy.
d. energy is not conserved.
- _____ 4. The law of conservation of energy states that energy
a. is created from motion.
b. cannot be created or destroyed.
c. is always equal and opposite.
d. can only be converted into heat.
- _____ 5. Mechanical energy can change to nonmechanical energy as a result of
a. air resistance. c. radiation.
b. heat. d. None of the above
- _____ 6. A system that receives energy from external sources is called
a. open. b. closed. c. compound. d. efficient.
- _____ 7. _____ is the ratio of useful work output to work input.
a. Potential energy c. Kinetic energy
b. Efficiency d. Power
- _____ 8. How efficient is a machine that uses 130 J to lift a 50.0 N load 2.0 m?
a. 19% b. 52% c. 77% d. 87%
- _____ 9. What is the work output by a 92% efficient wheel and axle when 75 J of work is input?
a. 67 J b. 69 J c. 75 J d. 81.5 J
- _____ 10. An 84% efficient single pulley is used to lift a 230 kg piano 3.5 m. How much work must be input?
a. 676 J b. 9.6×10^2 J c. 6.6×10^3 J d. 9.4×10^3 J