

Name: _____ Date: _____
Physics

Review

Energy, Work and Power

Directions: Read each statement carefully, then choose the best answer for that statements.

- _____ 1. How much power is expended if you lift a 50-N rock 10 meters in 5 second?
- a) 500 watts
 - b) 250 watts
 - c) 100 watts
 - d) 50 watts
- _____ 2. If you lift two loads up one story, how much work do you do in comparison to lifting just one load up one story?
- a) four times as much
 - b) twice as much
 - c) the same amount
 - d) one half as much
- _____ 3. The amount of potential energy possessed by an elevated object is equal to ...
- a) the work needed to lift it
 - b) the distance it is lifted
 - c) the power used to lift it
 - d) the value of the acceleration due to gravity
- _____ 4. Energy is changed from one form to another with no **net loss** or gain.
- a) always true
 - b) sometimes true
 - c) always false
 - d) sometimes false
- _____ 5. As pendulum swings, back and forth ...
- a) potential energy is converted into kinetic energy
 - b) kinetic energy is converted into potential energy
 - c) at the lowest point of its swing, its energy is all kinetic
 - d) all the above
- _____ 6. A frictionless inclined plane is 10 meters long and rest on a wall that is 2.5 meters high. How much force is needed to push a block of ice weighing 250-N up the plane?
- a) 650 N
 - b) 250 N
 - c) 100 N
 - d) 62.5 N

- _____ 7. Suppose a moving car has 2000 J of kinetic energy. If the car's speed doubles, how much kinetic energy would it then have?
- a) 8000 J
 - b) 6000 J
 - c) 12000 J
 - d) 16000 J
- _____ 8. Kinetic energy is equal to ...
- a) one half the product of the mass and the speed
 - b) one half the product of the mass and the speed squared
 - c) the mass times the acceleration squared
 - d) one half the product of the mass and the momentum squared
- _____ 9. Which reaches the bottom of a hill sooner, an empty car tire or the same tire mounted on a rim?
- a) The mounted tire
 - b) the empty tire
 - c) neither, it's a tie
 - d) flat tire
- _____ 10. A job is done slowly, and an identical job is done quickly. Both jobs require the same amount of work but different amounts of ...
- a) energy
 - b) power
 - c) inertia
 - d) neither of the above

Energy, Work and Power

Directions: Solve and show your work.

- _____ 11. Austin's crane lifted a 45,000. kg block 25.0 meters in 120 seconds with a constant velocity.
- _____
- a) How much work does the crane do?
 - b) What is the average power consumption?
- _____ 12. A constant force of 362 N was applied at an angle of 36° to the horizontal was to move a 22.0 kg block 15.0 meters in 12.0 seconds.
- _____
- a) Find the amount of work.
 - b) Determine the average power consumption.

"A great leader's courage to fulfill his vision comes from passion, not position." -- John Maxwell