

Chapter 9 Test Energy

True or False Questions*Circle the correct answer*

- T** **F** 1. The rate at which work is done is called power.
- T** **F** 2. The energy an object has by virtue of its location is called its potential energy.
- T** **F** 3. The energy an object has by virtue of its motion is called its kinetic energy.
- T** **F** 4. The ratio of output force to input force for a simple machine is called its efficiency.
- T** **F** 5. More power is needed to carry a heavy suitcase slowly up a flight of stairs than to carry the suitcase quickly up the same flight of stairs.

Multiple Choice Questions*Choose the best answer to each question and write the appropriate letter in the space provided.*

- _____ 6. If you lift one load up two stories, how much work do you do compared to lifting one load up only one story?
- Four times as much
 - Twice as much
 - The same amount
 - One half as much
- _____ 7. If Nellie Newton pushes an object with twice the force for twice the distance, she does
- the same work.
 - twice the work.
 - four times the work.
 - eight times the work.
- _____ 8. How much work is done on a 50-N rock that you lift 10 m straight up?
- 500 J
 - 50 J
 - 10 J
 - 1 J
- _____ 9. How much power is expended if you lift a 50-N rock 10 meters in 1 second?
- 500 W
 - 50 W
 - 10 W
 - 5 W

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- _____ 10. An object that has kinetic energy must be
- moving.
 - falling.
 - elevated.
 - at rest.
- _____ 11. An arrow in a bow has 70 J of potential energy. Assuming no energy loss, how much kinetic energy will it have after it has been shot?
- 140 J
 - 70 J
 - 50 J
 - 35 J
- _____ 12. If Skelly the skater's speed is increased so he has twice the momentum, then his kinetic energy is increased by
- two.
 - four.
 - eight.
 - zero.
- _____ 13. A car that travels twice as fast as another when braking to a stop will skid
- twice as far.
 - four times as far.
 - depends on the mass of the cars.

Math Problems

Solve the following problems in the space provided. Show all work.

14. How much work is done in lifting 30 kg of bricks to a height of 20 m?
15. A toy cart moves with a kinetic energy of 40 J. What will its kinetic energy be if its speed is doubled?

Essay Question

On a separate sheet of paper, answer the following question.

16. Discuss how energy conservation applies to a pendulum. Where is potential energy the most? The least? Where is kinetic energy the most? The least? Where is the pendulum accelerating the most? The least? Where is it moving the fastest? Stopped?