

13 Work, Power, and Energy

Worksheet A: Basic Concepts & Vocabulary

Name _____

AP Physics B

In the space to the left, write the answer that best completes each statement.

- _____ 1. The cross product of force and distance from a pivot is called _____ .
- _____ 2. In contrast to #1, work is the dot product of displacement and _____ .
- _____ 3. A vector _____ product produces a scalar result.
- _____ 4. In contrast to #3, a vector _____ product yields a vector that is perpendicular to both of the input vectors.
- _____ 5. Rather than Nm, the SI unit of work is the _____ .
- _____ 6. If a force acts at an angle of _____ degrees to the direction of the motion, NO work is done.
- _____ 7. Power is the _____ at which work is done.
- _____ 8. The SI unit of power is the _____ .
- _____ 9. You push against a car stuck in the mud. You will do _____ work unless you are successful in moving the car.
- a) _____ 10. A job is done slowly and an identical job is done quickly. Both jobs required the same total amount of _____ but
b) _____ required different amounts of time and _____ .
- a) _____ 11. In using a machine, the input energy is always _____ than the work the
b) _____ machine does. This is usually because of the effects of _____ .

In the space to the left, write the letter of the best answer to each question.

- _____ 12. A crate is pushed to the top of a frictionless inclined plane 15 m long with a force of 25 N. If the crate weighs 125 N, how high is the inclined plane?
a) 0.50 m b) 1.0 m c) 3.0 m d) 5.0 m
- _____ 13. A person prevents a 7500 N car with its brakes released from rolling down a hill by pushing on the car with a force of 250 N. How much work has the person done?
a) 0 J b) 5.0×10^3 J c) 150,000 J d) 3.0×10^5 J
- _____ 14. Electric bills are paid on the basis of kilowatt•hours of electricity used. If you analyze "kilowatt•hour" you will realize it is a unit of...
a) force b) work c) power d) time

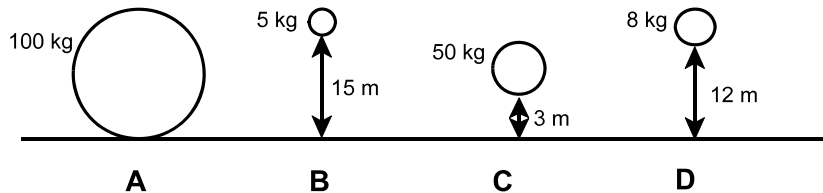
CONTINUED ON REVERSE

In the space to the left, write the answer that best completes each statement.

- a) _____ 15. List two different units which are used to measure power.
- b) _____
 _____ 16. _____ work indicates that mechanical energy is being removed from a system.
- _____ 17. Energy is the ability to do _____ .
- _____ 18. Energy is easily _____ from one form to another.
- _____ 19. _____ energy is associated with radio waves, X-rays, gamma rays, etc.
- _____ 20. _____ energy is the energy of motion.
- _____ 21. An object's position above a surface determines its _____ potential energy.
- _____ 22. The energy in #21 depends only on the object's weight and _____, and not the path that it follows as it is raised.
- _____ 23. Under ideal conditions, if a 300 N mass is lifted 1 meter, it should provide _____ J to do work as it falls back to Earth.
- a) _____ 24. The position at which $U_g = 0$ is called the _____ .
- b) _____
 _____ 25. Energy is always _____ when it is changed from one form to another, except in nuclear reactions.
- a) _____ 26. An object is falling toward the earth. The loss of _____ potential energy from the object is equal to its gain in _____ energy.
- b) _____

In the space to the left, write the letter of the best answer to each question.

- _____ 27. Which of the following is an energy unit?
 A. watt B. calorie C. newton•second D. joule/second
- _____ 28. Which object below has the most potential energy relative to the surface?



- _____ 29. Which object below has the most kinetic energy?

