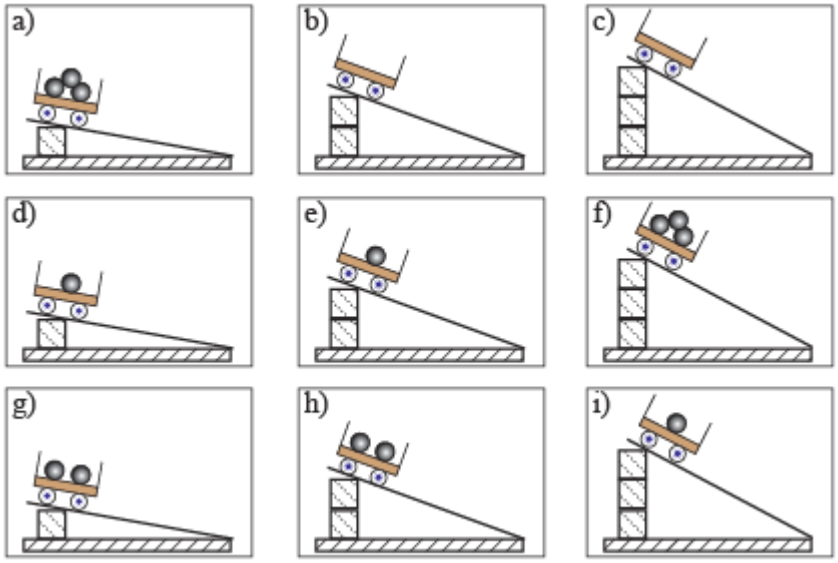
Name: _____ Practice Ph11 3-1

1. The derived unit for energy is the
   a) joule second
   b) joule meter
   c) kilogram meter
   d) newton joule
   e) newton meter

2. Which of the following is **NOT** a form of energy?
   a) Friction
   b) Heat
   c) Light
   d) Sound

Use the following information to answer the next 1 question(s).

The diagrams below show different tests you can do with carts on ramps. Assume that all carts and weights have the same mass, and that frictional forces can be ignored.



3. You want to test this idea: the higher a cart starts, the greater its speed at the bottom of the ramp. Which three tests would you use?
   a) c, f, i
   b) c, e, g
   c) b, d, h
   d) d, e, i
   e) a, e, i

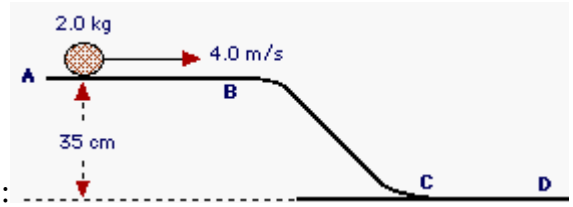
4. A bullet travelling at a high velocity has a large amount of kinetic energy. If the bullet hits a tree and gets embedded in the tree where has the kinetic energy of the bullet gone?
   a) The kinetic energy is transformed into thermal energy and sound energy
   b) The kinetic energy is transformed into friction
   c) The kinetic energy is transformed into potential energy
   d) None of the above.

5. Which of the following is **not** a vector?
   a) momentum b) energy c) force d) impulse

6. A 2.90 x 10^{-3}-kg bullet is fired with a velocity of 154 m/s toward a 5.44-kg stationary solid block resting on a surface that has a coefficient of friction 0.215. The bullet emerges with a reduced velocity of 20.2 m/s after passing through the block. What distance will the block slide before coming to rest? Assume that the block does not lose any mass.

7. A 1.00 kg object falls from a height of 20.0 m. Just before hitting the ground, its kinetic energy is
   a) 392 J
   b) 14.0 J
   c) 19.7 J
   d) 196 J

8. IF ABCD is a frictionless track, the speed of the object on section CD is:



   a) 4.78 m/s
   b) 9.0 m/s
   c) 3.0 m/s
   d) 2.65 m/s
   e) 6.9 m/s

9. A ramp leading up to a loading platform is 3.0 m long and 1.0 m high at its highest point. If friction is ignored, what minimum force is needed to slide a 600 kg crate up the ramp? ($g = 10\ m/s^2$)
   a) 1.8 x 10^3 kg
   b) 6.0 x 10^3 N
   c) 3.0 x 10^3 N
   d) 2.0 x 10^3 N
   e) 2.0 x 10^2 kg

10. A change in the kinetic energy of an object is equal to the
    a) velocity of the object
    b) force exerted on the object
    c) change in its mass
    d) net work done on the object

11. A bullet if fired from a gun with a speed of 1000 cm/s. If the bullet has a mass of 0.01 kg, it possesses a kinetic energy of
    a) 5000 J
    b) 0.05 J
    c) 0.5 J
    d) 1 J
    e) 5 J

12. A 10.0 N object moves at 1.0 m/s. Its kinetic energy is
    a) 10 J
    b) 1.0 J
    c) 0.50 J
    d) more than 10 J

13. A bullet of mass 38 g was fired off, with an initial velocity of 75 m/s, from a gun pointing straight up. Assume there is no air resistance, what is the maximum height that the bullet will reach?

14. Which of the following best describes potential energy?
    a) Is the same as heat energy?
    b) Energy of motion.
    c) Energy that depends on position.
    d) Is always conserved.

15. A worker lifts a 10.0 kg block a vertical height of 2.0 m. The work he does on the block is
    a) 49 J
    b) 5.0 J
    c) 20 J
    d) 2.0×10^2 J