Name:_____

KINETIC AND POTENTIAL ENERGY WORKSHEET

Determine whether the objects in the following problems have kinetic or potential energy. Then choose the correct formula to use: $\mathbf{KE} = 1/2 \text{ m v}^2 \text{ } OR \quad \mathbf{PE} = \mathbf{mgh} = \mathbf{F_wh}$ Write your equation and label your answer.

- 1. You serve a volleyball with a mass of 2.1 kg. The ball leaves your hand with a speed of 30 m/s. The ball has ______ energy. Calculate it.
- 2. A baby carriage is sitting at the top of a hill that is 21 m high. The carriage with the baby weighs 12 N. The carriage has ______ energy. Calculate it.
- 3. A car is traveling with a velocity of 40 m/s and has a mass of 1120 kg. The car has ______energy. Calculate it.
- 4. A cinder block is sitting on a platform 20 m high. It weighs 79 N. The block has ______ energy. Calculate it.
- 5. There is a bell at the top of a tower that is 45 m high. The bell weighs 190 N. The bell has ______ energy. Calculate it.
- 6. A roller coaster is at the top of a 72 m hill and weighs 966 N. The coaster (at this moment) has ______ energy. Calculate it.
- 7. What is the kinetic energy of a 3-kilogram ball that is rolling at 2 meters per second?
- 8. The potential energy of an apple is 6.00 joules. The apple is 3.00-meters high. What is the mass of the apple?
- 9. Two objects were lifted by a machine. One object had a mass of 2 kilograms, and was lifted at a speed of 2 m/sec. The other had a mass of 4 kilograms and was lifted at a rate of 3 m/sec. a. Which object had more kinetic energy while it was being lifted?

b. Which object had more potential energy when it was lifted to a distance of 10 meters? Show your calculation.

Kinetic and Potential Energy Worksheet	Name	Date:
Classify the following as a type of potential energy	y or kinetic energy (use the letters	K or P)
1. A bicyclist pedaling up a hill	2. An archer with his bow drawn	
3. A volleyball player spiking a ball	4. A baseball thrown to second ba	ise
5. The chemical bonds in sugar	6. The wind blowing through you	r hair
7. Walking down the street	8. Sitting in the top of a tree	
9. A bowling ball rolling down the alley	10. A bowling ball sitting on the ra	ack
What examples can you find in your home that ar each type of energy)?	e examples of kinetic and potentia	al energy (name tw
11. Kinetic:		
12. Kinetic:		
13. Potential:		
14. Potential:		
Solve the following word problems using the kinet work!)	tic and potential energy formulas	(Be sure to show y
15. Determine the kinetic energy of a 1000-kg roller	coaster car that is moving with a sp	peed of 20.0 m/s.

16. If the roller coaster car in the above problem were moving with twice the speed, then what would be its new kinetic energy?

17. Missy Diwater, the former platform diver for the Ringling Brother's Circus had a kinetic energy of 15,000 J just prior to hitting the bucket of water. If Missy's mass is 50 kg, then what is her speed?

18. A cart is loaded with a brick and pulled at constant speed along an inclined plane to the height of a seat-top. If the mass of the loaded cart is 3.0 kg and the height of the seat top is 0.45 meters, then what is the potential energy of the loaded cart at the height of the seat-top?

19. A 75-kg refrigerator is located on the 70th floor of a skyscraper (300 meters above the ground) What is the potential energy of the refrigerator?

20. The potential energy of a 40-kg cannon ball is 14000 J. How high was the cannon ball to have this much potential energy?