Name _____ Period _____

Show all work for the following questions, including the equation and substitution with units.

1. An 80 N force has been applied to a block and move it 20 m along the direction of the force. How much work has been done to the block?

2. Calculate the work done when a 20-N force pushes a cart 3.5 m?

3. How much work is required to lift a 360 kilogram piano to a window whose height is 10 meters from the ground?

4. A box rests on a horizontal, frictionless surface. A girl pushes on the box with a force of 18 N to the right and a boy pushes on the box with a force of 12 N to the left. The box moves 4.0 m to the right. Find the work done by (a) the girl, (b) the boy, and (c) the net force.

5. A box has a mass of 5.8kg. The box is lifted from the garage floor and placed on a shelf. If 45J of work is done on the box how high is the shelf?

6. A man climbs on to a wall that is 3.6m high and uses2268J of potential energy. What is the mass of the man?

7. It requires a force of 594.55 N to stretch a certain linear spring 0.15 m. What is the constant for this spring?

8. A 3 kg ball is rolling 2 m/s. How much kinetic energy does it have?

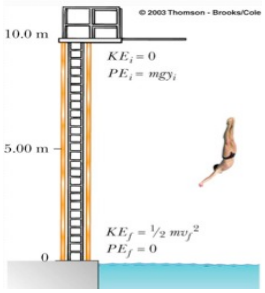
9. (a) Determine the kinetic energy of a 500-kg roller coaster car that is moving with a speed of 20 m/s. (b) If the roller coaster car were moving with twice the speed, then what would be its new kinetic energy?

10. Missy Diwater, the former platform diver for the Ringling Brother's Circus, had a kinetic energy of 12000 J just prior to hitting the bucket of water. If Missy's mass is 40 kg, then what is her speed?

11. A skater of mass 60 kg has an initial velocity of 12 m/s. He slides on ice where the frictional force is 36 N. How far will the skater slide before he stops?

12. A 60-N force is applied to a 100-kg cart at rest for 5 seconds on a frictionless surface. (a) What's the momentum change of the cart? (b) How much work has been done to the cart? (c) What's the average power in the first 20 seconds? (d) What's the kinetic energy of the

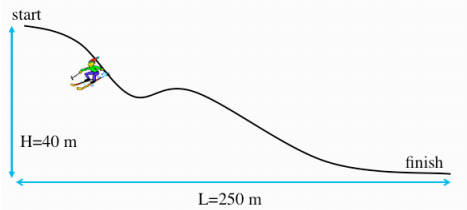
13. A diver of mass m drops from a board 10.0 m above the water surface. Find his speed 5.00 m above the water surface.



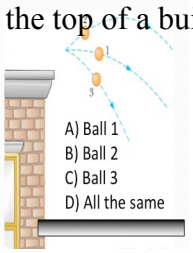
14. A diver of mass m drops from a board 10.0 m above the water surface. Find his speed right above the water surface.

Name _____ Period _____

15. A skier slides down the frictionless slope as shown. What is the skier's speed at the bottom?



16. Three identical balls are thrown from the top of a building with the same initial



17. A certain car can go from 0 to 100 km/h in 10 s. If the engine delivered four-times the power to the wheel, how many seconds would it take?