Forces, Vectors, Circular Motion, and Energy



<u>Across</u>

What is the net force on a 27kg pendulum suspended by a string while at rest? (a. 0N; b. 264.6N; c. 42N)
 Force that opposes the motion of an object.

9. Acceleration of an object due to nothing but Earth's gravity.

10. What is the formula for work?12. When under the influence of this force, orbiting objects are in free fall.13. Energy can never be created or destroyed, only converted from one form to another.

15. All forces are

17. T = Fr (What is the force calculated by this formula?)

19. If two orbiting stellar bodies have masses of 2.459E35kg and 3.110E21kg and are 2.500E8km apart, what is the gravitational force between them? Anwer in scientific notaiton using correct sig-figs.
20. The force that allows an object to move in a circle.
Down

1. The acceleration of an object moving in a circular path which has a constant speed and a constantly changing direction. 3. $G = 6.673E-11 N \times m^2/kg$ (What figure does this equation represent?) 4. This occurs when the net torque acting on an object is zero. 6. This type of drawing is used to show the relative magnitude and direction of all forces acting upon an object. 7. What reactive force results from a man standing still under the force of gravity?

8. The rate at which work is done. 11. The property of an object that resists change of motion.

14. What is the mass of an object with a gravitational potential engergy of 522kJ and is 135m off the ground? Remember sig-figs... (a. 400kg; b.395kg; c. 394.6kg)
16. If a truck with a mass of 2110kg has a speed of 25.0m/s, what is its kinetic energy? Use sig-figs. (a. 26.375kJ; b. 26kJ; c. 659kJ)

18. A small homemade winch can lift a 50N weight vertically 2 meters in 10 seconds. How much power does the winch have? (a. 10J; b. 10.5J; c. 12J; d. 12.5J; e. 20J)