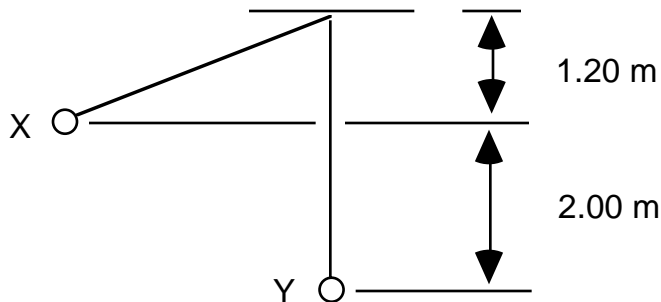


Phys12 Work/Energy : Worksheet - 10

1) The velocity of a car of mass 1150 kg changes from 12m/s east to 25 m/s west. What is the change in its kinetic energy ?

- a) 9.7×10^4 J b) 2.8×10^5 J c) 4.4×10^5 J d) 7.9×10^5 J

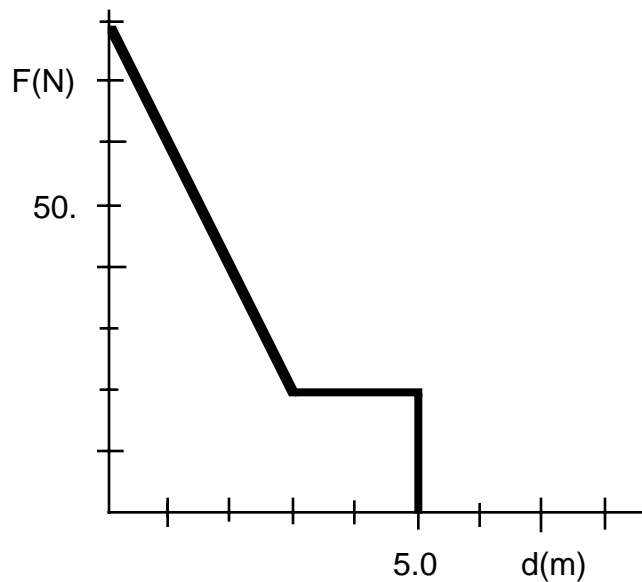
2)



The above diagram shows a simple pendulum with a mass of 1.00 kg. What is the change in the gravitational potential energy of the pendulum as it moves from **X** to **Y** ? ($g = 9.81 \text{ m/s}^2$)

- a) -19.6 J b) 19.6 J c) -11.8 J d) 11.8 J

3)



The above graph shows the force F exerted on a loaded wagon in the direction of its motion as it travels a distance of 8.0 m in 25 s. How much work is done by the force on this trip ?

- a) 640 J b) 280 J c) 190 J d) 7.6 J

4) Relative to the ground, what is the total energy of a 0.225 kg baseball if its speed is 12 m/s when its height is 15 m above the ground ?

- a) 16 J b) 17 J c) 33 J d) 49 J

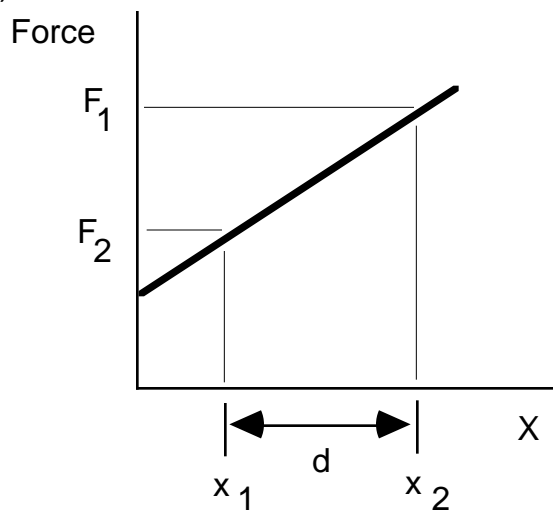
5) A 10.0 kg object is being pushed up an incline at 30.0° to the horizontal by a force of 55.0 N exerted in the direction of the motion. If the object is pushed a distance of 3.00 m, how much work is done by the force ?

- a) 82.5 J b) 147 J c) 165 J d) 294 J

6) A curling rock of mass 20.0 kg moving with a constant speed of 0.50 m/s collides obliquely with a stationary rock of the same mass. Immediately after the collision the second rock moves off at 0.30 m/s. If the collision is perfectly elastic, what is the speed of the incident rock immediately afterwards ?

- a) zero b) 0.20 m/s c) 0.30 m/s d) 0.40 m/s

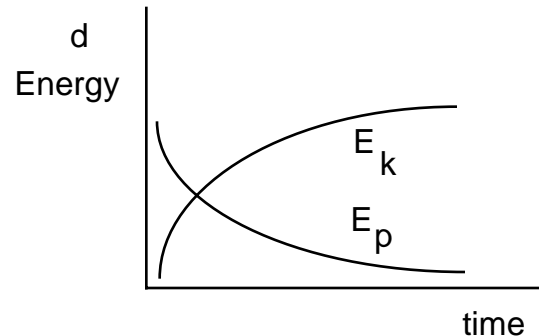
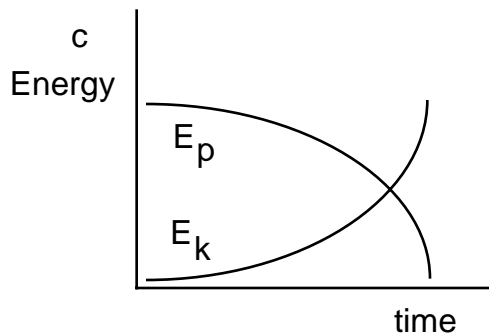
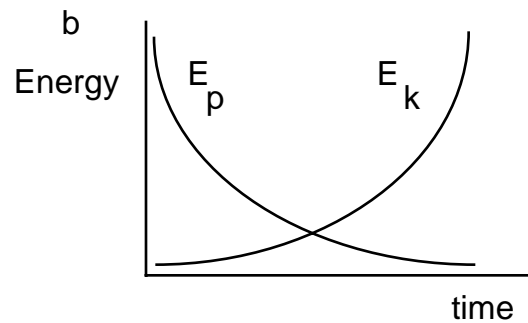
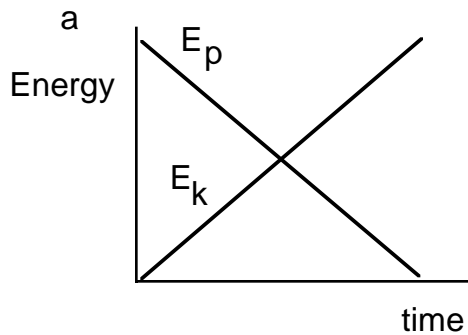
7)



The graph above shows how the force on a car varies with its position. How much work is done on the car while the car travels from x_1 to x_2 , a distance of d ?

- a) $(F_2 - F_1)d$ b) $2(F_2 - F_1)d$ c) $(F_2 - F_1)d/2$ d) $(F_2 + F_1)d/2$

8) Which of the following graphs shows how kinetic energy and the potential energy vary with time as a body slides down a frictionless straight ramp ?



Circle one : a) b) c) d)

9) Which of the following interactions within an isolated system can increase the total kinetic energy of the system ?

- a) A perfectly elastic collision.
 b) A totally inelastic collision.
 c) An explosion.
 d) Neither a collision nor an explosion.

10) A ball strikes a wall perpendicularly with an initial speed of 4.0 m/s, bouncing off the wall at 4.0 m/s in the opposite direction. Which of the following statements correctly compares the ball's momentum and kinetic energy before and after the collision respectively ?

- a) Its momentum is different and its kinetic energy is different.
- b) Its momentum is the same and its kinetic energy is the same.
- c) Its momentum is different but its kinetic energy is the same.
- d) Its kinetic energy is different but its momentum is the same.

Answers : 1) b, 2) a, 3) c, 4) d, 5) c, 6) d, 7) d, 8) c, 9) c, 10) c.