

Work/Energy : W.S.-8

1) A 1500 kg car moves with a constant speed of 7.0 m/s. The kinetic energy is _____ .

2)a) How much work is done by a force of 8.0 N that moves an object over a distance of 2.6 m. _____ .

b) If the friction is zero, the increase in kinetic energy is _____ .

c) If the speed of the object remains constant, find the work done against friction. _____ .

3)a) A 65 kg box is lifted to a height of 3.9m. The change in the gravitational potential energy of the box is _____ .

b) The work done in lifting the box is _____ .

4) A 1.2 kg object is accelerated horizontally by a force over a distance of 8.6 m, to a maximum velocity of 4.1 m/s, from a velocity of 0.0 m/s. Friction is zero.

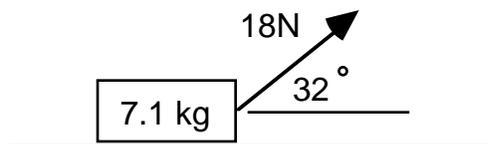
a) The maximum kinetic energy is _____ .

b) The work done is _____ .

c) Find the force on the object _____ .

d) What is the amount of work needed to stop the object?
_____ .

5) An object is pulled by a force to the right. Friction is zero.

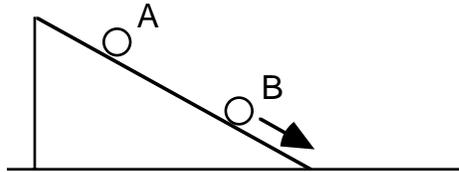


a) Find the horizontal component of the force.

b) If the force acts over a distance of 0.74 m, the work done is _____ .

c) The change in kinetic energy is _____ .

6) An ball rolls down an incline.



At point A the potential energy is 24 joules. The speed is zero. The kinetic energy at point B is 16 joules.

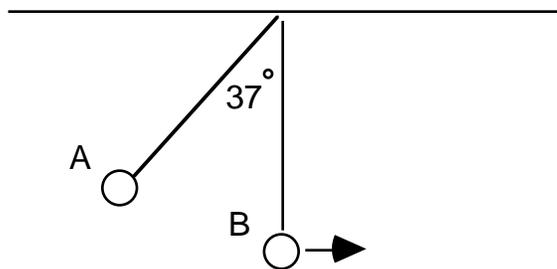
a) The total energy at A is _____ .

b) The total energy at B is _____ .

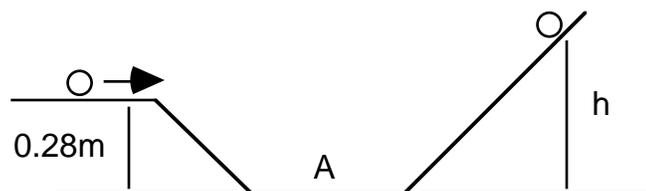
c) The potential energy at B is _____ .

d) The work done by gravity to move the ball from point A to point B is _____ .

7) A 1.27 m long pendulum swings from point A to point B. Find the speed at point B.



8) A 0.37 kg ball has a speed of 1.8 m/s.



a) Find the speed of the ball at point A. _____ .

b) Find the maximum height "h", that the ball rises. _____ .

Answers: 1) $3.7 \times 10^4 \text{J}$, 2)a) 21J, b) 21J, c) 21J, 3)a) $2.5 \times 10^3 \text{J}$, b) $2.5 \times 10^3 \text{J}$, 4)a) 10.J, b) 10.J, c) 1.2N, d) 10.J, 5)a) 15N, b) 11J, c) 11J, 6)a) 24J, b) 24J, c) 8J, d) 16J, 7) 2.2 m/s, 8)a) 3.0 m/s, b) 45 cm.