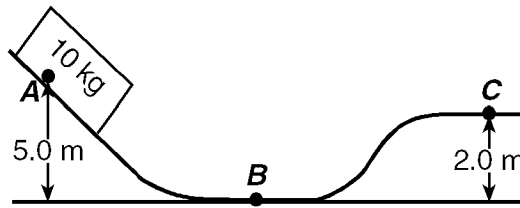


Question 1 refers to the following:

The diagram below represents a frictionless track. A 10-kilogram block starts from rest at point *A* and slides along the track.

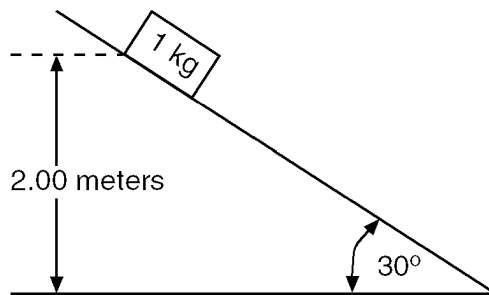


- 1) As the block moves from point *A* to point *B*, the total amount of gravitational potential energy changed to kinetic energy is approximately

A) 20 J B) 5 J C) 50 J D) 500 J

Questions 2 through 4 refer to the following:

The diagram below represents a 1.00-kilogram object being held at rest on a frictionless incline.



- 2) The object is released and slides the length of the incline. When it reaches the bottom of the incline, the object's kinetic energy will be *closest* to

A) 9.81 J B) 4.00 J C) 19.6 J D) 2.00 J

- 3) As the object slides down the incline, the sum of the gravitational potential energy and kinetic energy of the object will

A) remain the same C) increase
B) decrease

- 4) If the angle between the incline and the horizontal surface is increased, the magnitude of the force needed to hold the object at rest on the incline will

A) remain the same C) decrease
B) increase

- 5) A 6.0-kilogram concrete block is dropped from the top of a tall building. The block has fallen a distance of 55 meters and has a speed of 30. meters per second when it hits the ground.
- (a) At the instant the block was released, what was its gravitational potential energy with respect to the ground?
 - (b) Calculate the kinetic energy of the block at the point of impact.
 - (c) How much mechanical energy was "lost" by the block as it fell?
 - (d) Using one or more complete sentences, explain what happened to the mechanical energy that was "lost" by the block.