1) Which is a vector quantity?

   A) time B) distance C) speed D) acceleration

2) Acceleration is a vector quantity that represents the time-rate of change in

   A) distance B) velocity C) energy D) momentum

3) Which one of the following statements about the movement of an object with zero acceleration is true?

   A) The object may be slowing down. C) The object may be in motion.
   B) The object must be at rest. D) The object may be speeding up.

4) If an object is traveling east with a decreasing speed, the direction of the object's acceleration is

   A) south B) north C) east D) west

5) A locomotive starts from rest and accelerates at 0.12 meter per second$^2$ to a speed of 2.4 meters per second in 20. seconds. This motion could *best* be described as

   A) constant acceleration and constant velocity C) constant acceleration and increasing velocity
   B) increasing acceleration and increasing velocity D) increasing acceleration and constant velocity

6) The graph below represents the motion of a body moving along a straight line.
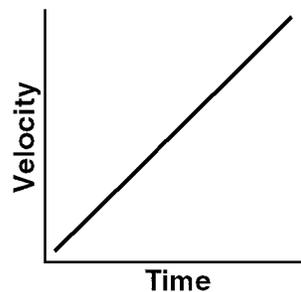


   According to the graph, which quantity related to the motion of the body is constant?
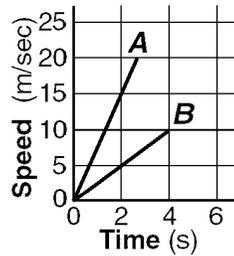
   A) speed B) acceleration C) displacement D) velocity

7) Which graph *best* represents the motion of an object sliding down a frictionless inclined plane?
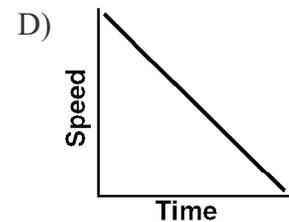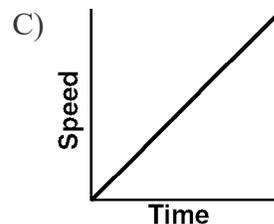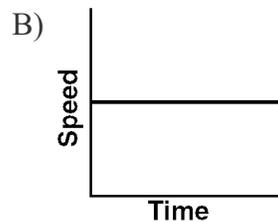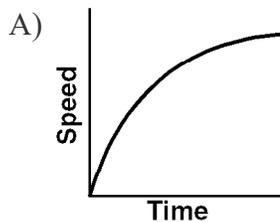
8) Which graph *best* represents the motion of an object initially at rest and accelerating uniformly?

A)    B)    C)    D) 
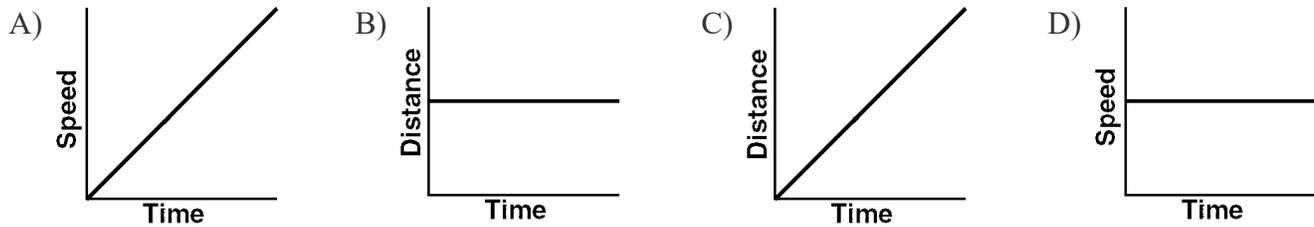
9) The graph below shows the relationship between speed and time for two objects, *A* and *B*.



Compared with the acceleration of object *B*, the acceleration of object *A* is

A) one-third as great        B) three times as great        C) the same                D) twice as great

10) A bicyclist accelerates from rest to a speed of 5.0 meters per second in 10. seconds. During the same 10. seconds, a car accelerates from a speed of 22 meters per second to a speed of 27 meters per second. Compared to the acceleration of the bicycle, the acceleration of the car is

C) the same                                           A) less

B) greater

11) Which pair of graphs represents the same motion?
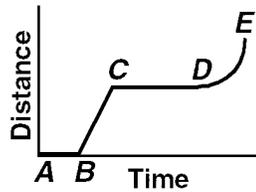
A)    B)    C)    D) 
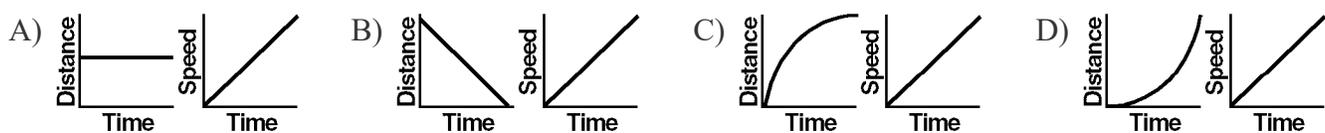
12) The diagram below shows a graph of distance as a function of time for an object in straight-line motion.
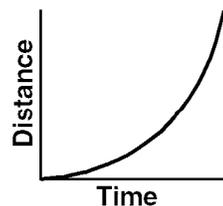


According to the graph, the object most likely has

A) an increasing speed                       C) a decreasing acceleration

B) a decreasing mass                         D) a constant momentum

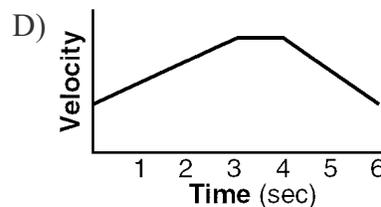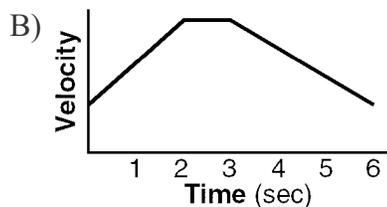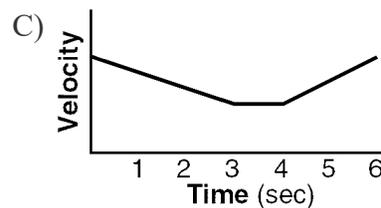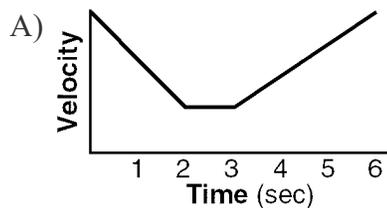13) The graph below represents the relationship between distance and time for an object in motion.



During which interval is the speed of the object changing?

A) *BC*　　　　　　　　B) *AB*　　　　　　　　C) *DE*　　　　　　　　D) *CD*

14) The displacement-time graph below represents the motion of a cart along a straight line.
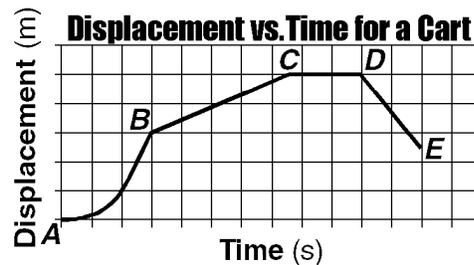


During which interval was the cart accelerating?

A) *BC*　　　　　　　　B) *CD*　　　　　　　　C) *DE*　　　　　　　　D) *AB*

15) Which graph *best* represents the relationship between velocity and time for an object which accelerates uniformly for 2 seconds, then moves at a constant velocity for 1 second, and finally decelerates for 3 seconds?

A)



C)



B)



D)

**Question 16 refers to the following:**

The diagram below represents a 20-newton force pulling an object up a hill at a constant rate of 2 meters per second.
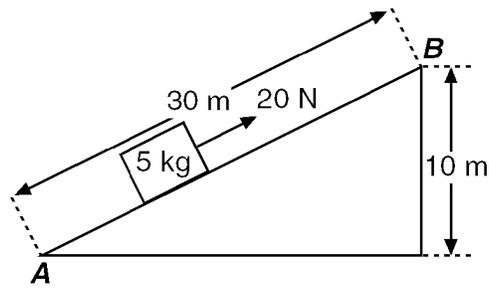


16) Which graph *best* represents the relationship between velocity and time for the object?

A)



B)



C)



D)