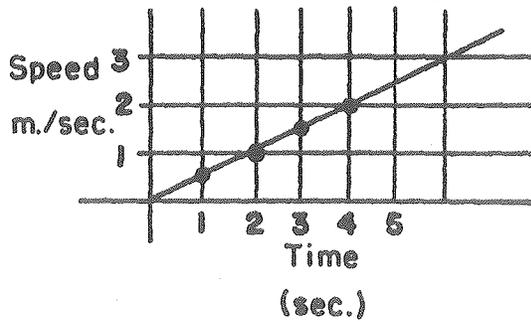


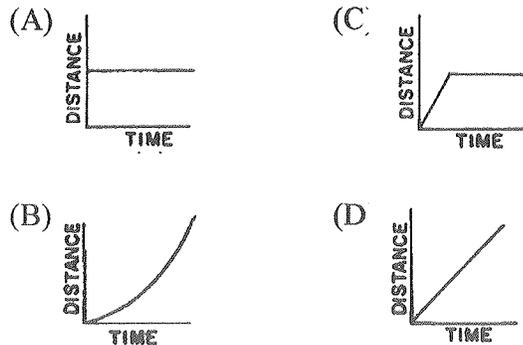
1. The graph below shows the speed of an object plotted against the time.



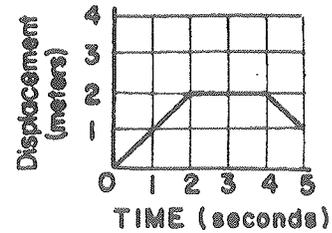
The total distance traveled by the object during the first 4 seconds is

- (A) 0.5 meter (C) 8 meters  
(B) 2 meters (D) 4 meters

2. Which graph represents an object moving at a constant speed for the entire time interval?

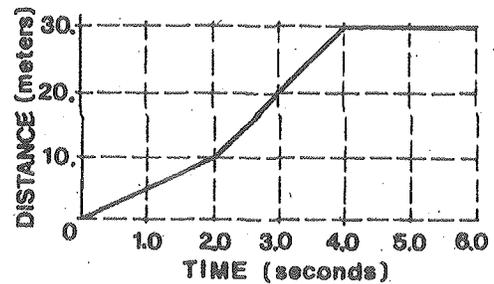


3. The graph below represents the motion of an object traveling in a straight line as a function of time. What is the average speed of the object during the first four seconds?



- (A) 1 m/s (C) 0.5 m/s  
(B) 2 m/s (D) 0 m/s

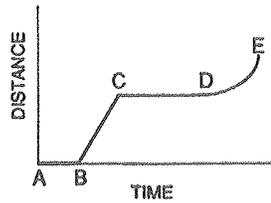
4. The distance-time graph below represents the position of an object moving in a straight line.



What is the speed of the object during the time interval  $t = 2.0$  seconds to  $t = 4.0$  seconds?

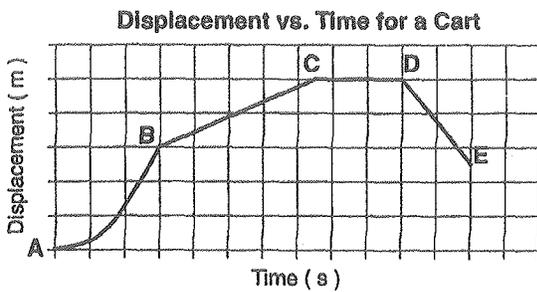
- (A) 0.0 m/s (C) 7.5 m/s  
(B) 5.0 m/s (D) 10. m/s

5. The graph at the right represents the relationship between distance and time for an object in motion. During which interval is the speed of the object changing?



- (A) AB
- (B) BC
- (C) CD
- (D) DE

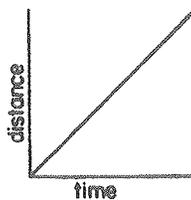
6. The displacement-time graph below represents the motion of a cart along a straight line.



During which interval was the cart accelerating?

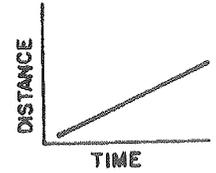
- (A) AB
- (B) BC
- (C) CD
- (D) DE

7. The graph at the right represents the motion of a body that is moving with



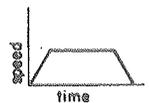
- (A) increasing acceleration
- (B) decreasing acceleration
- (C) increasing speed
- (D) constant speed

8. The distance-time graph at the right represents the motion of a laboratory cart. According to this graph, the cart is



- (A) slowing down
- (B) speeding up
- (C) not moving
- (D) moving at a constant speed

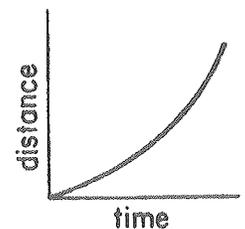
9. The speed-time graph shown on the right represents the motion of an object.



Which graph best represents the relationship between acceleration and time for this object?

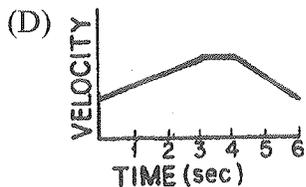
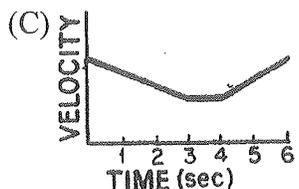
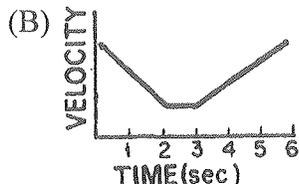
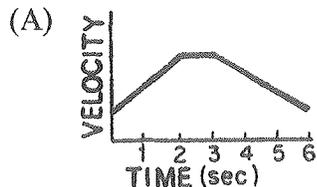
- (A)
- (B)
- (C)
- (D)

10. The graph at the right represents the relationship between distance and time for an object moving in a straight line. According to the graph, the object is

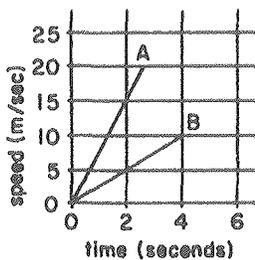


- (A) motionless
- (B) moving at a constant speed
- (C) decelerating
- (D) accelerating

11. 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?

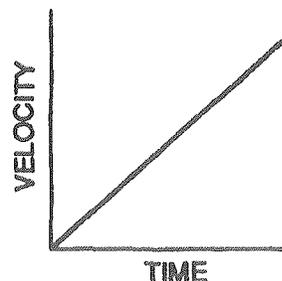


12. The graph at the right shows the relationship between speed and time for two objects, *A* and *B*. Compared with the acceleration of object *B*, the acceleration of object *A* is



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

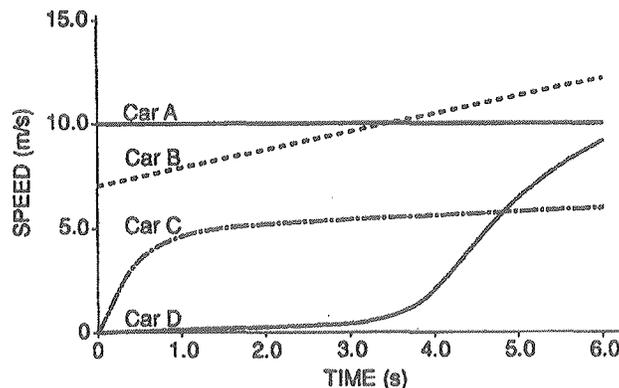
13. The graph below represents the motion of a body moving along a straight line.



According to the graph, which quantity related to the motion of the body is constant?

- (A) speed      (C) acceleration  
 (B) velocity      (D) displacement

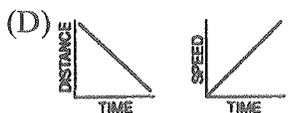
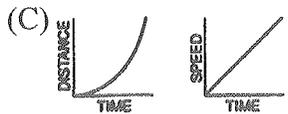
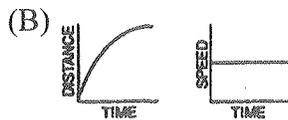
14. The graph below shows speed as a function of time for four cars *A*, *B*, *C*, and *D*, in straight-line motion.



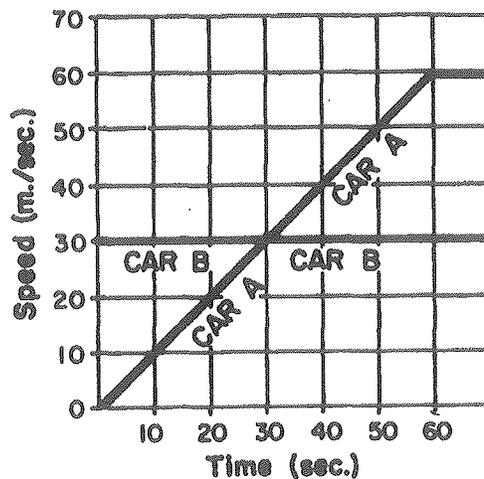
Which car experienced the greatest average acceleration during this 6.0-second interval?

- (A) car *A*      (C) car *C*  
 (B) car *B*      (D) car *D*

15. Which pair of graphs represent the same motion?



Base your answers for questions 16 through 20 on the graph below, which represents the motion of cars *A* and *B* on a straight track. Car *B* passes car *A* at the same instant that car *A* starts from rest at  $t = 0$  seconds.



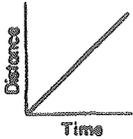
16. What is the acceleration of car *A* during the interval between  $t = 0$  and  $t = 60$ ?
- (A) 1 m./sec./sec.                      (C) 20 m./sec./sec.  
(B) 10 m./sec./sec.                      (D) 30 m./sec./sec.
17. How far did car *A* travel in the interval between  $t = 0$  and  $t = 60$ ?
- (A) 30 m.                                      (C) 1,800 m.  
(B) 360 m.                                      (D) 3,600 m.
18. How long after  $t = 0$  did it take car *A* to catch up to car *B*?
- (A) 10 sec.                                      (C) 30 sec.  
(B) 20 sec.                                      (D) 60 sec.

19. During the time intervals given below, which car traveled the greatest distance?

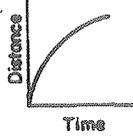
- (A) car *A* from  $t = 0$  to  $t = 30$
- (B) car *A* from  $t = 30$  to  $t = 60$
- (C) car *B* from  $t = 0$  to  $t = 30$
- (D) car *B* from  $t = 30$  to  $t = 60$

20. Which distance-time graph best represents the motion of car *B* during the time interval between  $t = 0$  and  $t = 60$ ?

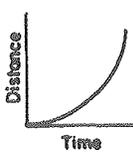
(A)



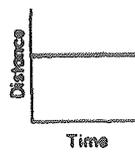
(C)



(B)



(D)



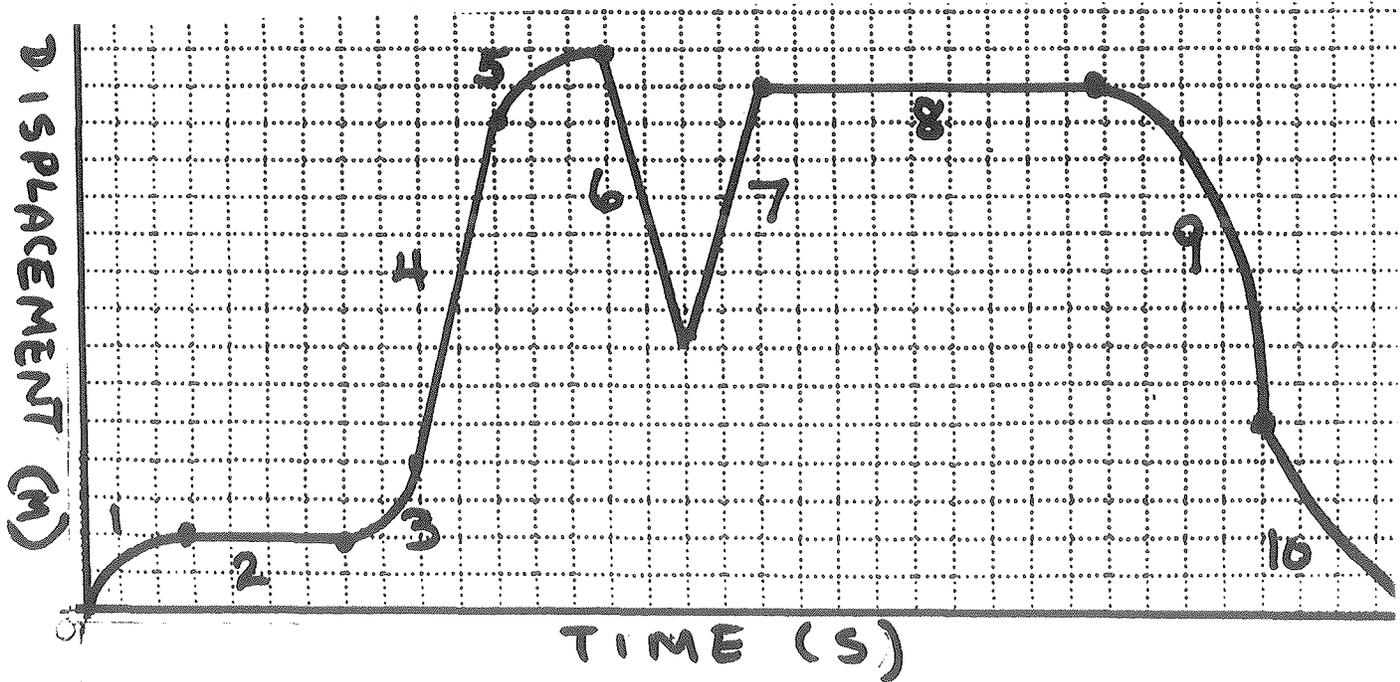
### Graphical Analysis

#### Part I. Multiple Choice.

Write your answers on the scantron sheet. Record the test number on the scantron sheet or I will not know what answer sheet to use.

#### Part II. Distance vs Time graph

Use the intervals marked on the graph to describe the entire trip. Each interval is worth 2 points. State the direction of travel, and one other bit of information.



- |          |           |
|----------|-----------|
| 1. _____ | 6. _____  |
| 2. _____ | 7. _____  |
| 3. _____ | 8. _____  |
| 4. _____ | 9. _____  |
| 5. _____ | 10. _____ |