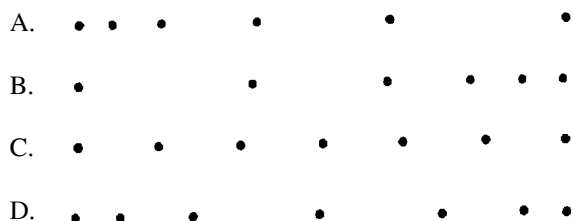


Practice - 1D Kinematics

Name: _____

Date: _____

1. A blinking light of constant period is situated on a lab cart. Which diagram best represents a photograph of the light as the cart moves with constant velocity?



2. A car travels 20 meters east in 1.0 second. The displacement of the car at the end of this 1.0-second interval is

- A. 20 m B. 20 m/s
C. 20 m east D. 20 m/s east

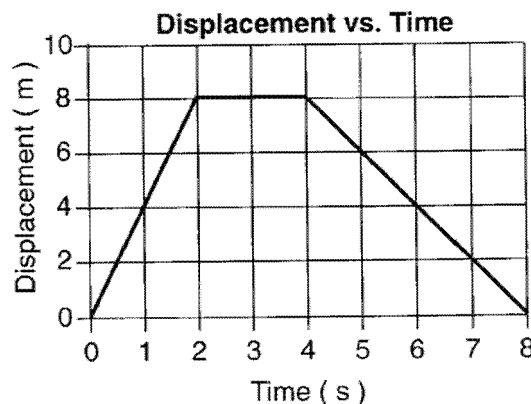
3. What is the average velocity of a car that travels 30. kilometers due west in 0.50 hour?

- A. 15 km/hr B. 60. km/hr
C. 15 km/hr west D. 60. km/hr west

4. A cart moving across a level surface accelerates uniformly at 1.0 meter per second² for 2.0 seconds. What additional information is required to determine the distance traveled by the cart during this 2.0-second interval?

- A. coefficient of friction between the cart and the surface
B. mass of the cart
C. net force acting on the cart
D. initial velocity of the cart

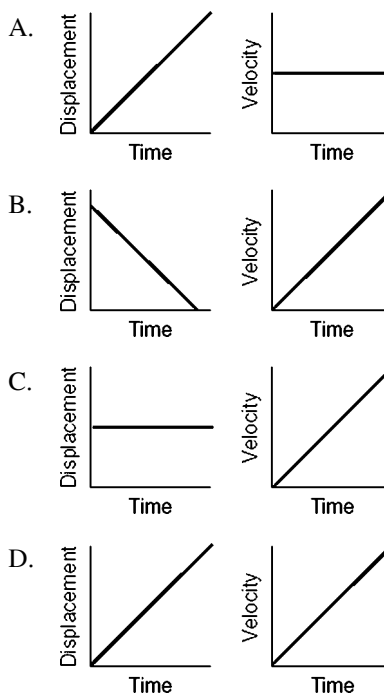
5. Base your answer(s) to the following question(s) on the graph, which represents the relationship between the displacement of an object and its time of travel along a straight line.



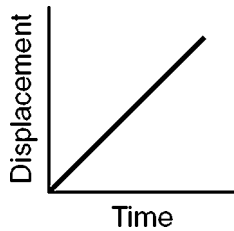
What is the magnitude of the object's total displacement after 8.0 seconds?

- A. 0 m B. 2 m C. 8 m D. 16 m

6. Which pair of graphs represent the same motion?

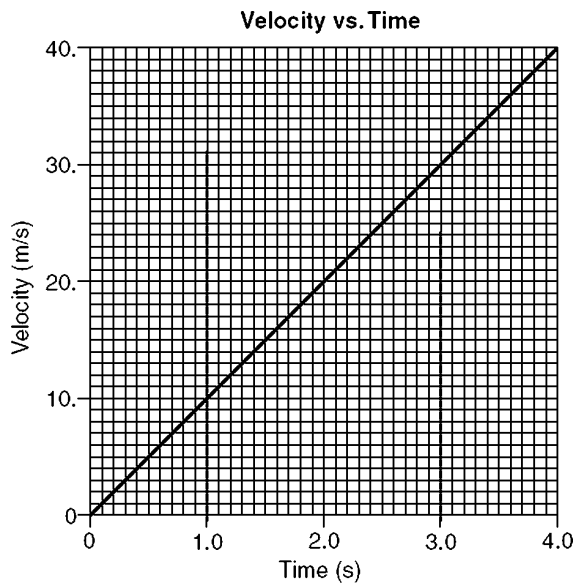


7. The accompanying graph represents the motion of an object.



According to the graph, as time increases, the velocity of the object

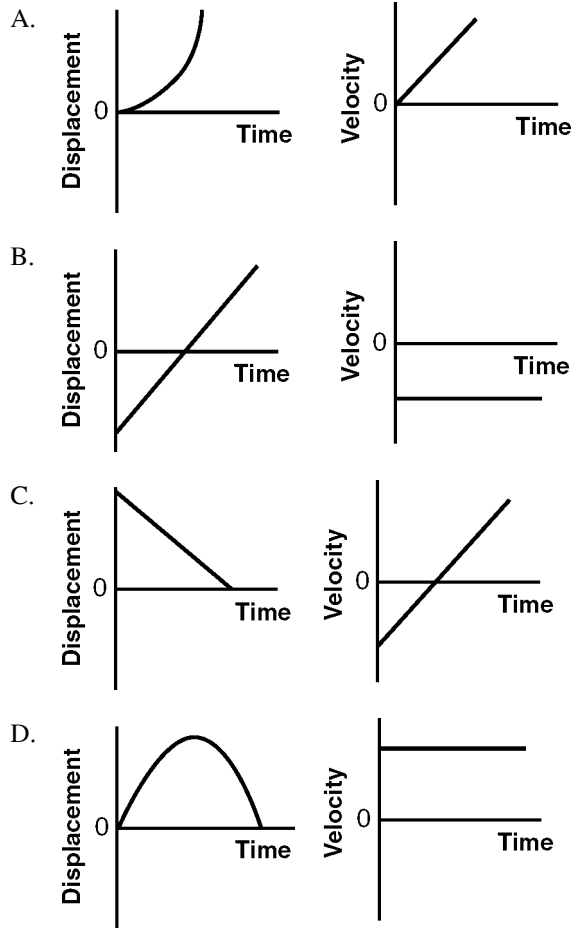
- A. decreases B. increases
C. remains the same
8. The accompanying graph shows the velocity of a race car moving along a straight line as a function of time.



What is the magnitude of the displacement of the car from $t = 2.0$ seconds to $t = 4.0$ seconds?

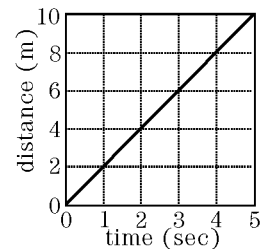
- A. 20. m B. 40. m C. 60. m D. 80. m
9. A car travels 300 meters in 15 seconds. What is the average velocity of the car?
- A. 5.0 m/sec B. 15 m/sec
C. 20 m/sec D. 30 m/sec

10. Which pair of graphs represents the same motion of an object?



11. The uniform motion of a cart is shown in the distance versus time graph. What is the average speed of the cart?

- A. 0.5 m/sec
B. 2 m/sec
C. 5 m/sec
D. 50 m/sec



12. What is the distance traveled by an object that moves with an average speed of 6.0 meters per second for 8.0 seconds?
- A. 0.75 m B. 1.3 m
C. 14 m D. 48 m

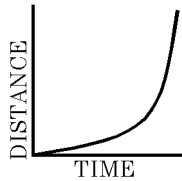
13. A flashing light of constant 0.20-second period is situated on a lab cart. The diagram shown represents a photograph of the light as the cart moves across a table top. How much time elapsed as the cart moved from position A to position B?



- A. 1.0 s B. 5.0 s C. 0.80 s D. 4.0 s

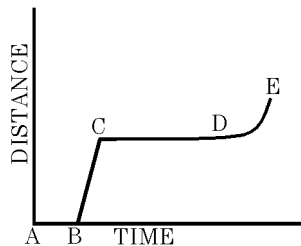
14. The diagram shows a graph of distance as a function of time for an object in straight-line motion. According to the graph, the object most likely has

- A. a constant momentum
 B. a decreasing acceleration
 C. a decreasing mass
 D. an increasing speed



15. The graph shown 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



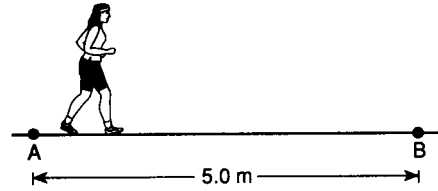
16. A runner completed the 100-meter dash in 10.0 seconds. Her average speed was

- A. 0.100 m/s B. 10.0 m/s
 C. 100 m/s D. 1,000 m/s

17. A group of bike riders took a 4.0 hour trip. During the first 3.0 hours, they traveled a total of 50 kilometers, but during the last hour they traveled only 10 kilometers. What was the group's average speed for the entire trip?

- A. 15 km/hr B. 30 km/hr
 C. 40 km/hr D. 60 km/hr

18. A jogger accelerates at a constant rate as she travels 5.0 meters along a straight track from point A to point B, as shown in the diagram. If her speed was 2.0 meters per second at point A and will be 3.0 meters per second at point B, how long will it take her to go from A to B?



- A. 1.0 s B. 2.0 s C. 3.3 s D. 4.2 s

19. A car travels between the 100-meter and 250-meter highway markers in 10 seconds. The average speed of the car during this interval is

- A. 10 m/s B. 15 m/s
 C. 25 m/s D. 35 m/s

20. A baseball pitcher throws a fastball at 42 meters per second. If the batter is 18 meters from the pitcher, approximately how much time does it take for the ball to reach the batter?

- A. 1.9 s B. 2.3 s C. 0.86 s D. 0.43 s

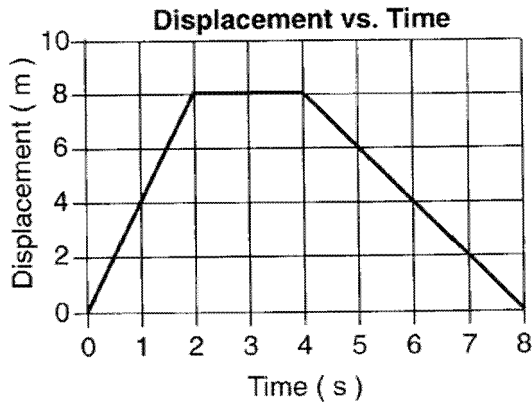
21. A car having an initial speed of 16 meters per second is uniformly brought to rest in 4.0 seconds. How far does the car travel during this 4.0-second interval?

- A. 32 m B. 82 m C. 96 m D. 4.0 m

22. A truck with an initial speed of 12 meters per second accelerates uniformly at 2.0 meters per second² for 3.0 seconds. What is the total distance traveled by the truck during this 3.0 second interval?

- A. 9.0 m B. 25 m C. 36 m D. 45 m

23. Base your answer(s) to the following question(s) on the graph, which represents the relationship between the displacement of an object and its time of travel along a straight line.



What is the average speed of the object during the first 4.0 seconds?

- A. 0 m/s B. 2 m/s C. 8 m/s D. 4 m/s
24. A ball thrown vertically upward reaches a maximum height of 30. meters above the surface of Earth. At its maximum height, the speed of the ball is
- A. 0.0 m/s B. 3.1 m/s
 C. 9.8 m/s D. 24 m/s
25. A car traveling west in a straight line on a highway decreases its speed from 30.0 meters per second to 23.0 meters per second in 2.00 seconds. The car's average acceleration during this time interval is
- A. 3.5 m/s^2 east B. 3.5 m/s^2 west
 C. 13 m/s^2 east D. 13 m/s^2 west
26. Base your answer(s) to the following question(s) on the information below.

A car traveling at a speed of 13 meters per second accelerates uniformly to a speed of 25 meters per second in 5.0 seconds.

A truck traveling at a constant speed covers the same total distance as the car in the same 5.0-second time interval. Determine the speed of the truck.

27. Base your answer(s) to the following question(s) on the information below.

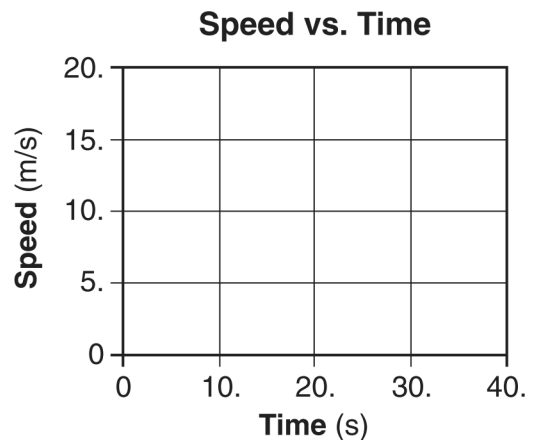
A car on a straight road starts from rest and accelerates at $1.0 \text{ meter per second}^2$ for 10. seconds. Then the car continues to travel at constant speed for an additional 20. seconds.

Determine the speed of the car at the end of the first 10. seconds.

28. Base your answer(s) to the following question(s) on the information below.

A car on a straight road starts from rest and accelerates at $1.0 \text{ meter per second}^2$ for 10. seconds. Then the car continues to travel at constant speed for an additional 20. seconds.

On the grid below, use a ruler or straightedge to construct a graph of the car's speed as a function of time for the entire 30.-second interval.

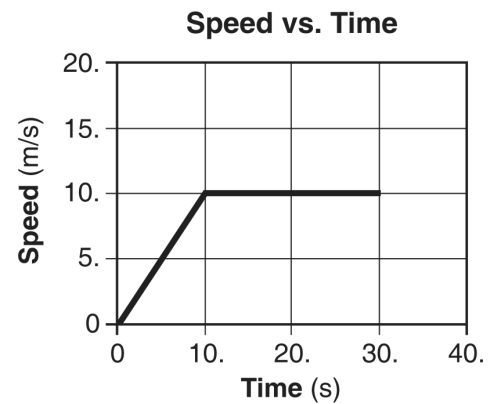


29. Calculate the distance the car travels in the first 10. seconds. [Show all work, including the equation and substitution with units.]

Practice - 1D Kinematics 10/27/2017

- 1.
Answer: C
Objective: I.04A
- 2.
Answer: C
- 3.
Answer: D
- 4.
Answer: D
- 5.
Answer: A
- 6.
Answer: A
- 7.
Answer: C
- 8.
Answer: C
- 9.
Answer: C
- 10.
Answer: A
Objective: B.04A
- 11.
Answer: B
Objective: I.04B
- 12.
Answer: D
- 13.
Answer: C
- 14.
Answer: D
- 15.
Answer: D
- 16.
Answer: B
- 17.
Answer: A
- 18.
Answer: B
- 19.
Answer: B

- 20.
Answer: D
- 21.
Answer: A
- 22.
Answer: D
- 23.
Answer: B
- 24.
Answer: A
- 25.
Answer: A
- 26.
Answer: 19 m/s
- 27.
Answer: 10. m/s
- 28.
Answer: line segment from 0 to 10. s.
line segment from 10. to 30. s.



- 29.
Answer: $d = .50 \text{ m}$