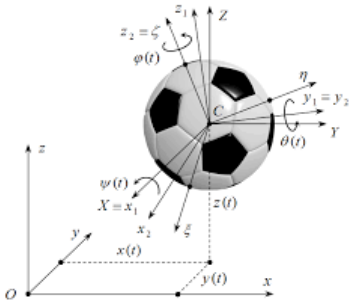
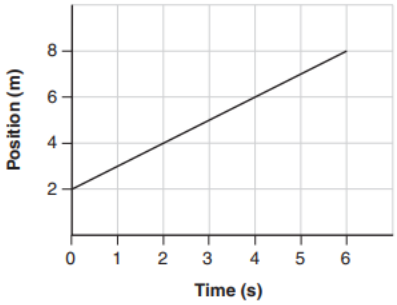
Intro to Kinematics Quiz Review



What to know:

1. Frequency
2. Period
3. Constant velocity problems
4. Vector vs. Scalar
5. Displacement vs. time graph reading

1.

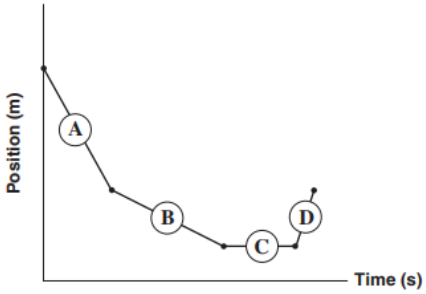


Which of the following variables can be determined from the graph?

I	position
II	velocity
III	displacement

A. I only
B. I and III only
C. II and III only
D. I, II and III

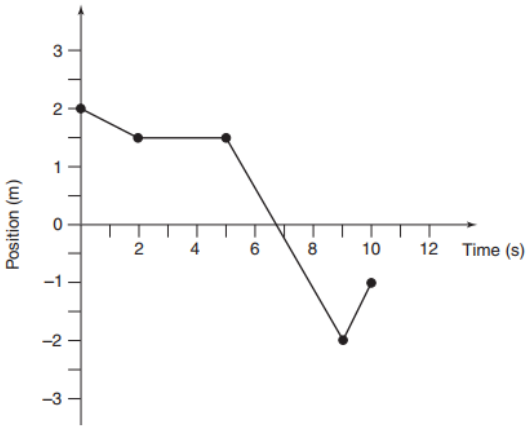
2.



During which time interval does the car have the greatest negative velocity?

A. (A)
B. (B)
C. (C)
D. (D)

3.



A tightrope walker starts 2 m from the centre of a rope. Which of the following statements describes the sequence of events that follow?

I	From 0 to 2 s, the walker moves in a negative direction.
II	From 2 to 5 s, the walker stands still.
III	From 5 to 9 s, the walker moves in a positive direction.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

4.

During which time interval is the tightrope walker moving with a positive velocity?

A. 0–2 s
B. 2–5 s
C. 5–9 s
D. 9–10 s

5.

Which of the following events has the greatest displacement?

A. a boat travelling north at 25 m/s for 8 s
B. a car travelling north at 20 m/s for 10 s
C. a person running north at 4 m/s for 60 s
D. a cyclist travelling north at 10 m/s for 20 s

6.

In the 2008 Beijing Olympics, Usain Bolt set two world records. He ran the 100 m race in 9.69 s and the 200 m race in 19.30 s. What was his average velocity for each race?

	Average velocity: 100 m race	Average velocity: 200 m race
A.	+0.0969 m/s	+0.0965 m/s
B.	+10.32 m/s	+10.36 m/s
C.	+10.35 m/s	+10.35 m/s
D.	+10.41 m/s	+20.82 m/s

7.

A dragonfly travels 100 m north at 8 m/s , then 50 m north at 10 m/s . What is its average velocity?

A. 8.3 m/s north
B. 8.6 m/s north
C. 16.7 m/s north
D. 25.0 m/s north

8. How long will it take an ant to go 2 meters if it travels at a rate of 18cm/s

A. 11 minutes
B. 0.1 minutes
C. 11.11 seconds
D. 9 seconds

9.

The Eurotunnel connects Great Britain and France, passing under the English Channel. A train leaves France with an average velocity of 110 km/h and travels 37 km in the tunnel.

How long is the train in the tunnel?

A. 20 min
B. 68 min
C. 244 min
D. 4070 min

10. A toy car moves 80 m in 3 s at the constant velocity. What is the car's velocity?

A. 10 m/s B. 20 m/s C. 240 m/s D. 42 m/s E. 26.7 m/s

11. A train moves at a constant velocity of 50 km/h. How far will it move in 0.5 h?
A. 10 km B. 20 km C. 25 km D. 45 km E. 50 km

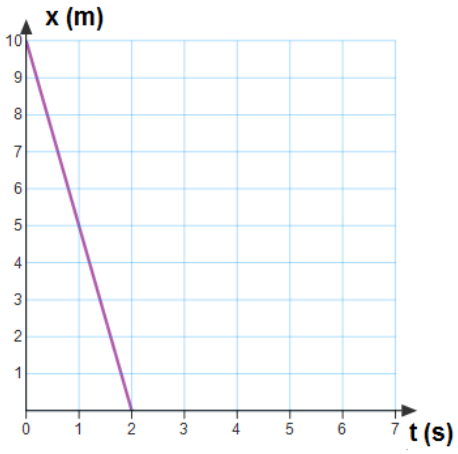
12. A boat can move at a constant velocity of 8 km/h in still water. How long will it take for the boat to move 24 km?
A. 20 min B. 3 min C. 4 h D. 6 h E. 3 h

The following graph represents the position as a function of time for a moving object. Use this graph to answer questions 13 and 14.

13. Which of the following is true?
A. The object increases its velocity
B. The object decreases its velocity
C. The object's velocity stays unchanged
D. The object stays at rest
E. More information is required

14. What is the velocity of the object?
A. 4 m/s B. 20 m/s C. 8 m/s D. 40 m/s E. 5 m/s

The following graph represents the position as a function of time of a moving object. Use this graph for questions 15 and 16.

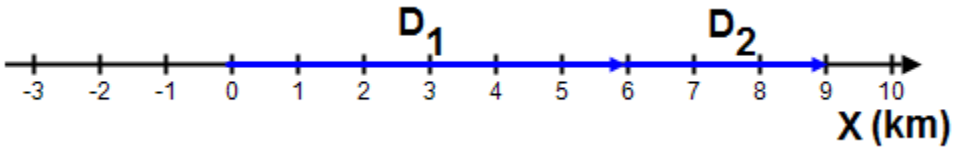


15. What is the initial position of the object?
A. 2 m B. 4 m C. 6 m D. 8 m E. 10 m

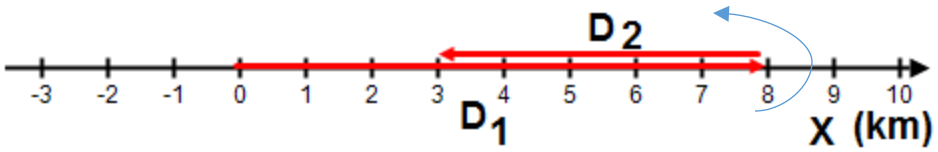
16. What is the velocity of the object?
A. 5 m/s B. -5 m/s C. 10 m/s D. -10 m/s
E. 0 m/s

17. Which of the following is a **vector** quantity?

A. Speed B. Time C. Traveled distance D. Velocity E. Area



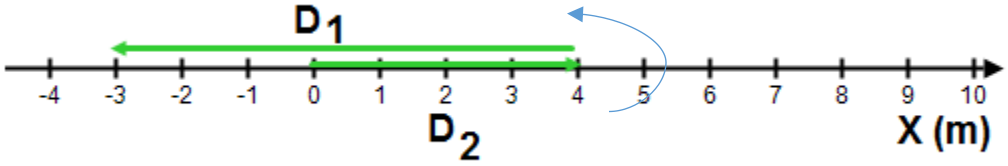
18. Starting from the origin, a person walks 6 km east during first day, and 3 km east the next day. What is the net **displacement** of the person from the initial point in two days?
A. 6 km, west B. 3 km, east C. 10 km, east D. 5 km, west E. 9 km, east



The diagram above illustrates a person who, starting from the origin, walks 8 km east during first day, and 5 km west the next day. Use it to answer questions 19 and 20.

19. What is the net **displacement** of the person from the initial point in two days?
A. 6 km, east B. 3 km, east C. 10 km, west D. 5 km, west E. 9km,east

20. What is the traveled **distance** of the person from the initial point in two days?
A. 13 km B. 3 km C. 10 km D. 5 km E. 9 km



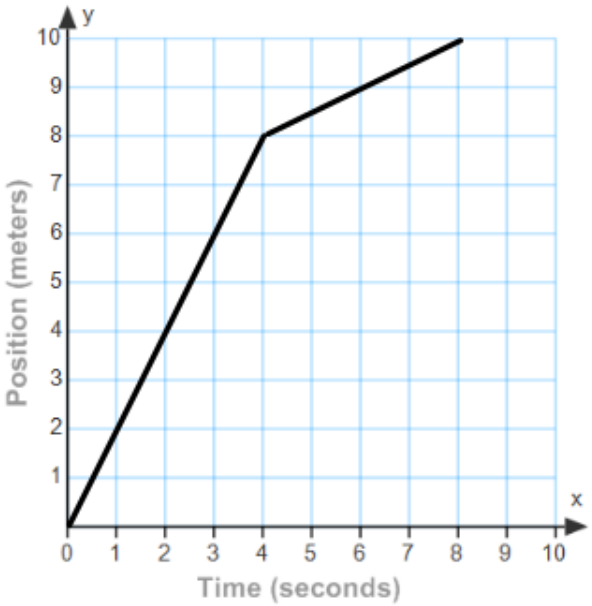
The diagram above illustrates a car that, starting from the origin, travels 4 km east and then 7 km west. Use it to answer questions 21 and 22.

21. What is the net **displacement** of the car from the initial point?
A. 3 km, west B. 3 km, east C. 4 km, east D. 7 km, west E. 7 km east

22. Starting from the origin, a car travels 4 km east and then 7 km west. What is the traveled **distance** of the car from the initial point?

A. 3 km B. 3 km C. 4 km D. 7 km E. 11 km

The position vs. time graph of a moving object is shown to the right. Use this graph to answer questions 23 through 26.



23. What is the average speed from 0 s to 4 s?
    A. 0.5 m/s B. 1 m/s C. 2 m/s
    D. 3 m/s E. 4 m/s

24. What is the average speed from 4 s to 8 s?
    A. 0.5 m/s B. 1 m/s
    C. 2 m/s D. 3 m/s
    E. 4 m/s

25. What is the object's position at 6 s?
    A. 2 m B. 1 m C. 3 m
    D. 7 m E. 9 m

26. What is the average acceleration from 4 s to 8 s?
    A. 0 m/s^2 B. 1 m/s^2 C. 2 m/s^2 D. 3 m/s^2
    E. 4 m/s^2

Answers:

1. D
2. A
3. A
4. D
5. C
6. B
7. B
8. C
9. A
10. E
11. C
12. E
13. C
14. E
15. E
16. B
17. D
18. E
19. B
20. A
21. A
22. E
23. C
24. A
25. E
26. A