Review Pack #3
"Where Are We Going?"

Multiple Choice Questions

1. Which of the following best describes displacement?

   (A) The distance an object travels between two points.
   (B) The straight-line distance between two points and the direction.
   (C) The distance divided by time.

2. A car travels 5 km East, 5 km North, 5 km East, and 5 km South to school. The total distance traveled is

   (A) 0 km.
   (B) 10 km East.
   (C) 20 km East.
   (D) 20 km.

3. A girl walks 8 blocks East then turns around and walks 10 blocks West. What is her displacement?

   (A) 18 blocks East
   (B) 18 blocks West
   (C) 2 blocks East
   (D) 2 blocks West

4. A speed of 80 km/h is equivalent to

(A) 288 m/s.
(B) 22.22 m/s.
(C) 22 222 m/s.
(D) 28.8 m/s.

5. The definition of velocity is

(A) distance divided by time.
(B) displacement divided by time.
(C) speed divided by time.
(D) the rate of change of position.

6. A cyclist travels 7 km in 30 minutes. What is his average speed?

(A) 14 km/h
(B) 0.23 km/h
(C) 210 km/h
(D) 3.5 km/h

7. A boy walks for 120 s at a speed of 1.5 m/s. How far does he go?

(A) 180 m
(B) 120 m
(C) 80 m
(D) 0.008 m

8. How long does it take a girl to run a 200 m race if she runs at a speed of 2.0 m/s?

(A) 400 s

(B) 200 s

(C) 100 s

(D) 0.01 s

9. Which of the following statements is correct?

(A) Speed is the distance traveled divided by the time.

(B) Velocity is the distance traveled divided by the time.

(C) Speed is the distance traveled in a specified direction.

(D) Velocity is the displacement in a specified direction.

10. The change in velocity divided by time is known as the

(A) speed.

(B) displacement.

(C) acceleration.

11. A drag racer accelerates from rest (0 m/s) to 35 m/s in 5 s. Calculate the acceleration.

(A) 175 m/s^2

(B) 35 m/s^2

(C) 7 m/s^2

(D) 0.14 m/s^2

12. A car slows down at a rate of 1.2 m/s^2 from a speed of 25 m/s. How long does it take the car to stop?

(A) 30 s

(B) 20.8 s

(C) 17.4 s

(D) 0.05 s

13. A rocket, starting from rest, accelerates at a rate of 8.0 m/s^2. How fast is it going after 10 s?

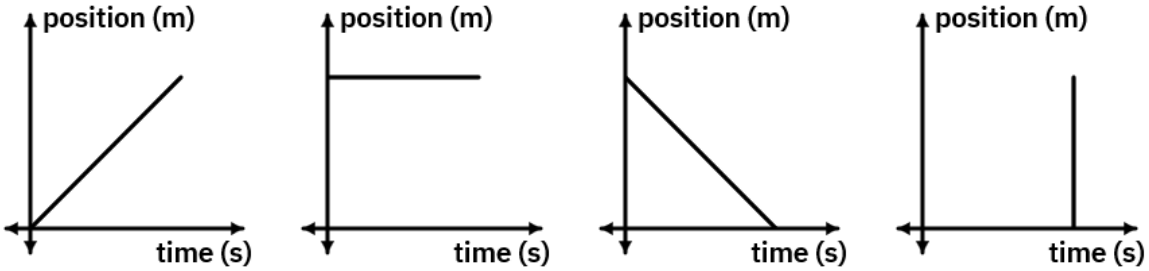
(A) 800 m/s

(B) 80 m/s

(C) 8 m/s

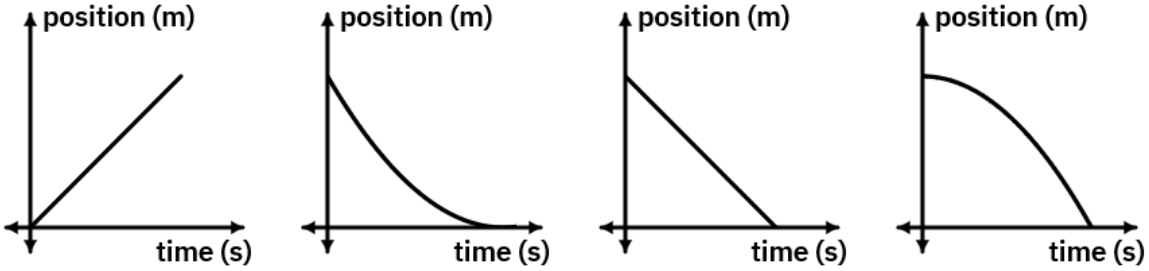
(D) 1.25 m/s

14. A dog ran away from his house in a straight line for 20 m in 4 s, without stopping. Which of the following position-time graphs correctly shows the motion of the dog.



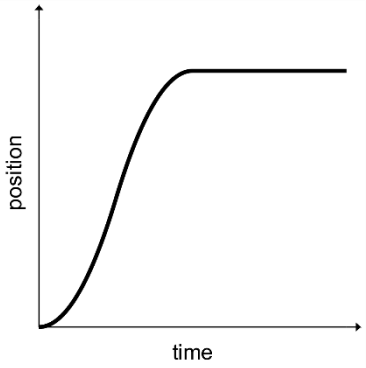
(A) (B) (C) (D)

15. Which of the following position-time graphs shows the motion of an object moving in the negative direction with increasing speed?



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

16. The following graph shows the motion of a car.



Which description best describes the motion?

(A) The car is moving at a constant speed and then stops.

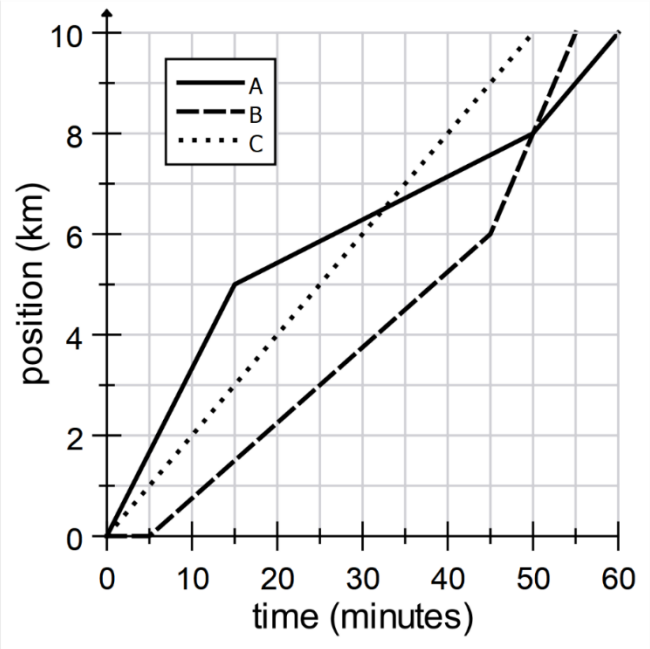
(B) The car speeds up from rest and then slows down and stops.

(C) The car speeds up from rest and then travels at a constant speed.

(D) The car speeds up from rest then slows down and continues to move at a constant speed.

Questions 17 – 23 refer to the following information.

Three students (A, B, and C) have a 10 km bike race. The following graph shows the motion of the three students with respect to time.



17. Who won the race?

(A) A

(B) B

(C) C

(D) It was a tie; everyone finished at the same time.

18. Which cyclist had a constant speed during the entire race?

(A) A

(B) B

(C) C

(D) None of the cyclists had a constant speed during the entire race.

19. What was the average speed of cyclist B?

(A) 0.28 km/minute
(B) 0.20 km/minute
(C) 0.18 km/minute
(D) 0.17 km/minute

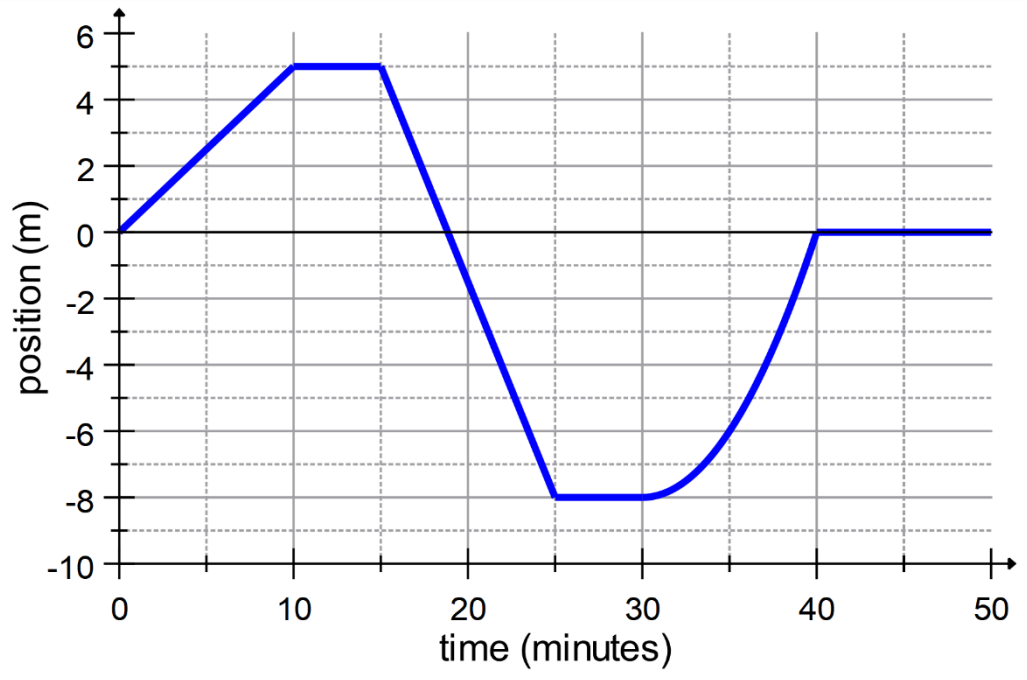
20. At what time are cyclists A and B at the same position?

(A) 32 minutes
(B) 50 minutes
(C) 550 minutes
(D) Never

Free Response Questions

1. A car took 0.5 s to skid to a stop at an intersection. The acceleration of the car was -20 m/s^2. What was the initial speed of the car?

2. The following position-time graph represents the position of a boy walking along the sidewalk. The positive direction is north.



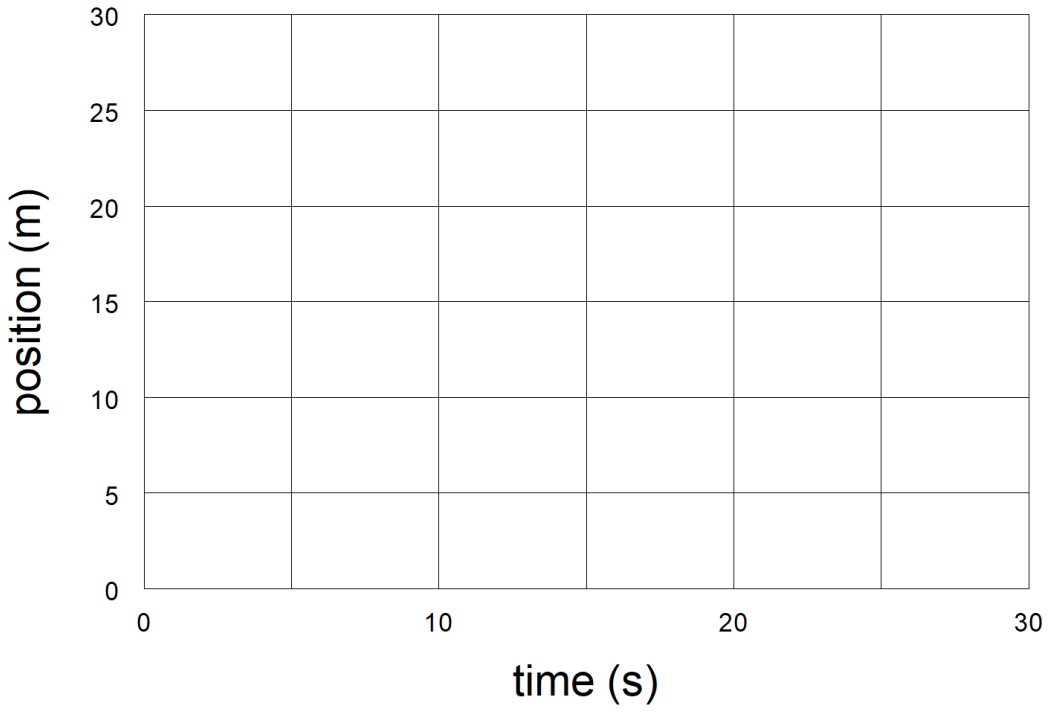
(a) During what time interval(s) is the boy south of his starting point?

(b) Calculate the boy's average speed during the first 10 minutes.

3. The following data table gives the position of a dog with respect to time.

Time (s)	Position (m)
0	0
5	10
10	20
15	20
20	15
25	0

(a) Graph the position of the dog with respect to time.



(b) During what time interval did the dog stop? Explain.

(c) During what time interval did the dog move the fastest? Explain.