McRoberts Secondary

Physics 11 Kinematics Retest 2025-10-15

Personal Data

Family Name:

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In this section **no** changes or modifications must be made!

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Type: 025

Exam ID(Physics 11): 25101500001

Please mark the boxes carefully: ☒ Not marked: ☐ or ■

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Only clearly marked and positionally accurate crosses will be processed!

Answers 1 - 15

	a	b	c	d
1	☐	☐		
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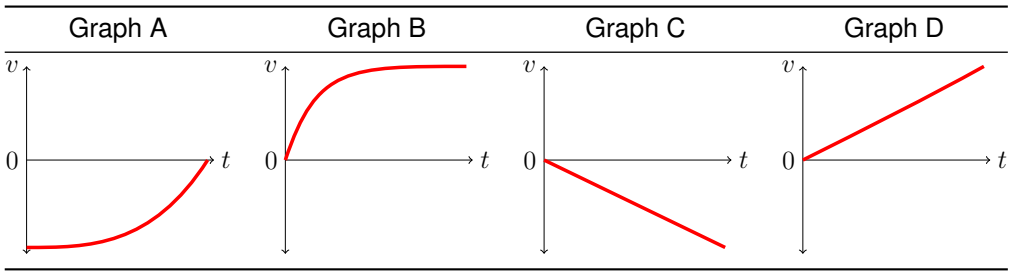
14	☐	☐	☐	☐
15	☐	☐	☐	☐
	a	b	c	d

Answers 16 - 25

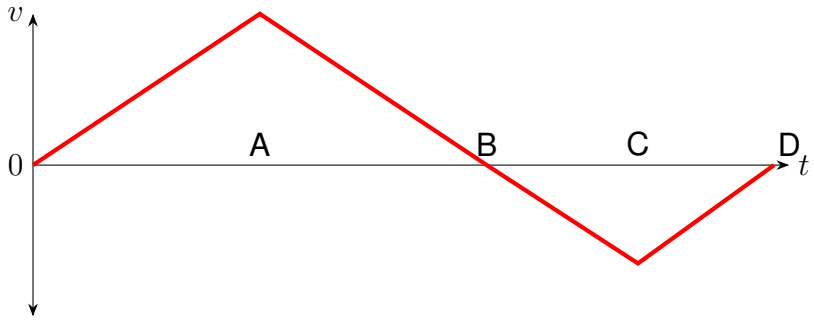
	a	b	c	d
16	☐	☐	☐	☐
17	☐	☐	☐	☐
18	☐	☐	☐	☐
19	☐	☐	☐	☐
20	☐	☐	☐	☐
21	☐	☐	☐	☐
22	☐	☐	☐	☐
23	☐	☐	☐	☐
24	☐	☐	☐	☐
25	☐	☐	☐	☐
	a	b	c	d

1. True or false? An object which is slowing down is represented on a velocity-time graph by a line with a negative slope.
   a. True
   b. False
2. True or false? If an object is moving to the right, then its acceleration must also be to the right.
   a. True
   b. False
3. True or false? The area under a velocity-time graph is the displacement.
   a. True
   b. False
4. True or false? If an object changes direction, then the line on its velocity-time graph must have a changing slope.
   a. True
   b. False
5. True or false? If an object is moving to the right, then its velocity must also be to the right.
   a. True
   b. False
6. Which velocity-time graph represents the motion of an object that is slowing down?



   a. Graph A
   b. Graph B
   c. Graph C
   d. Graph D
7. What is the magnitude of the slope of a position-time graph?
   a. speed
   b. velocity
   c. distance
   d. rate
8. An object is moving to the left and speeding up. Which choice best describes its velocity and acceleration? (Assume right is positive.)
   a. velocity is positive; acceleration is negative.
   b. velocity is negative; acceleration is positive.
   c. velocity and acceleration are both positive.
   d. velocity and acceleration are both negative.

9. At which point in time is the displacement of the object maximum?



   a. Point A
   b. Point B
   c. Point C
   d. Point D

10. Which of the following are scalars? *Select all that apply.*

   a. time
   b. speed
   c. velocity
   d. displacement

11. Consider a ball that is thrown upwards and which then falls back down. If up is the positive direction, then the ball's acceleration

   a. is always positive.
   b. is always negative.
   c. starts positive, then becomes negative.
   d. starts negative, then becomes positive.

12. Ball 1 is dropped from the top of a building. One second later, ball 2 is dropped from the same building. If air resistance can be ignored, then as time progresses (and while the balls are still in free fall), the distance between them

   a. increases.
   b. remains constant.
   c. decreases.
   d. cannot be determined from the given information.

13. A car traveling at speed v is able to stop in a distance d. Assuming the same constant acceleration, what distance does this car require to stop when it is traveling at speed $3v$?

   a. $\sqrt{3}\mathrm{d}$
   b. $9\mathrm{d}$
   c. $3\mathrm{d}$
   d. d

14. Two balls are launched straight up. The first ball is launched with 6 times the initial speed of the second. Ignore air resistance. How many times higher does the first ball rise compared to the second?

   a. $\sqrt{6}$ times as high
   b. 6 times as high
   c. 6^2 times as high
   d. Impossible to determine without knowing the initial speeds

15. The acceleration of gravity on Planet X is $1.01\,\mathrm{g}$, where g is the acceleration of gravity on Earth. If you hit a baseball on this planet with the same speed and angle as you do on Earth, the ball would land

    a. 1.01^2 times as far
    b. $1/1.01$ times as far
    c. 1.01 times as far
    d. $1/1.01^2$ times as far

16. A runner completes a marathon (42.195 km) in 2 hours, 18 minutes, and 50 seconds. What is the runner's average speed for the marathon in m/s?

    a. 5.64 m/s
    b. 8.22 m/s
    c. 5.07 m/s
    d. 3.57 m/s

17. A car with good tires on a dry road can decelerate at about $5.0\,\mathrm{m/s^2}$ when braking. If the car travels with an initial velocity of 88 km/h and brakes under such conditions, what distance would it travel before it stops?

    a. 15 m
    b. 2 m
    c. 60 m
    d. 59 m

18. A car slows down uniformly and comes to a stop after 3 s. The car's average velocity during this motion was 55 km/h. What was the car's acceleration while slowing down?

    a. -22.7 km/h/s
    b. -36.7 km/h/s
    c. -18.3 km/h/s
    d. -49.3 km/h/s

19. A plane flying with a horizontal velocity of 183 m/s and at an altitude of 366 m drops a package of supplies. A second package is dropped 6 s later. Ignoring air resistance, how far apart will the two packages land on the ground?

    a. 1171 m
    b. 1547 m
    c. 1098 m
    d. 701 m

20. A truck travels at 29 km/h for 2 hours and at 91 km/h for 9 hours. What is the average speed for the trip?

    a. 87.4 km/h
    b. 84.3 km/h
    c. 79.7 km/h
    d. 60 km/h

21. A ball tossed straight up returns to its starting point in 1.97 s. What was its initial speed? Ignore air resistance.

    a. 5.5 m/s
    b. 13.3 m/s
    c. 9.7 m/s
    d. 10.7 m/s

22. What is the maximum height reached by a ball thrown straight up with an initial velocity of 19.4 m/s? Assume that the ball is thrown on the surface of the Earth and that it undergoes constant acceleration due to gravity (ignore air resistance).

    a. 17.6 m
    b. 19.2 m
    c. 12.8 m
    d. 18.6 m

23. A golf ball is hit with an initial velocity of 89 m/s at an angle of 50° above the horizontal. What is its range (horizontal distance before hitting the ground)? Ignore air resistance and assume a flat golf course.

    a. 796 m
    b. 749 m
    c. 603 m
    d. 667 m

24. A person throws a rock horizontally, with an initial velocity of 20.9 m/s, from a bridge. It falls 9.83 m to the water below. How far does it travel horizontally before striking the water?

    a. 28.6 m
    b. 29.6 m
    c. 29.7 m
    d. 36.5 m

25. A person throws a rock straight down from a bridge with an initial speed of 30.6 m/s. It falls 12.6 m to the water below. How much time does it take for the rock to hit the water?

    a. 0.35 s
    b. 0.27 s
    c. 0.39 s
    d. 0.28 s