

McRoberts Secondary

Kinematics Retest 2 2025-11-05



Personal Data

Family Name:

Given Name:

Signature:

checked

Registration Number

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1	<input type="checkbox"/>	1					
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In this section **no** changes or modifications must be made!

Scrambling

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Type
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Exam ID(Physics 11)
25110500001

Please mark the boxes carefully: Not marked: or

This document is scanned automatically. Please keep clean and do not bend or fold. For filling in the document please use a **blue or black pen**.

Only clearly marked and positionally accurate crosses will be processed!

Answers 1 - 15

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	a	b	c	d

Answers 16 - 25

	a	b	c	d
16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	a	b	c	d

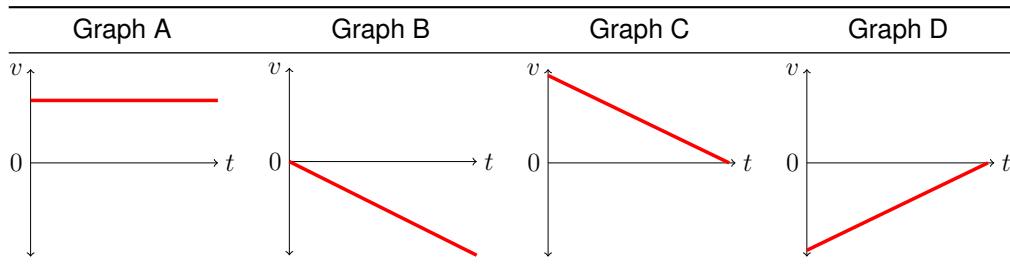


1. True or false? The area under a velocity-time graph is the displacement.
 - a. True
 - b. False
2. True or false? If an object is moving to the right, then its velocity must also be to the right.
 - a. True
 - b. False
3. True or false? If an object changes direction, then the line on its velocity-time graph must have a changing slope.
 - a. True
 - b. False
4. True or false? If an object is moving to the right, then its acceleration must also be to the right.
 - a. True
 - b. False
5. True or false? If the velocity vector and the acceleration vector both point in the same direction, then the object must be speeding up.
 - a. True
 - b. False
6. 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.
7. 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 difference in their speeds
 - a. increases.
 - b. remains constant.
 - c. decreases.
 - d. cannot be determined from the given information.
8. Which of the following is an accurate statement about motion with constant acceleration?
 - a. In equal times, speed increases by equal amounts.
 - b. In equal times, displacement changes by equal amounts.
 - c. In equal times, velocity changes by equal amounts.
 - d. In equal times, acceleration changes by equal amounts.
9. An object is moving to the left and slowing down. 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.

10. You hit a volley ball over the net. When the ball reaches its maximum height, its speed is

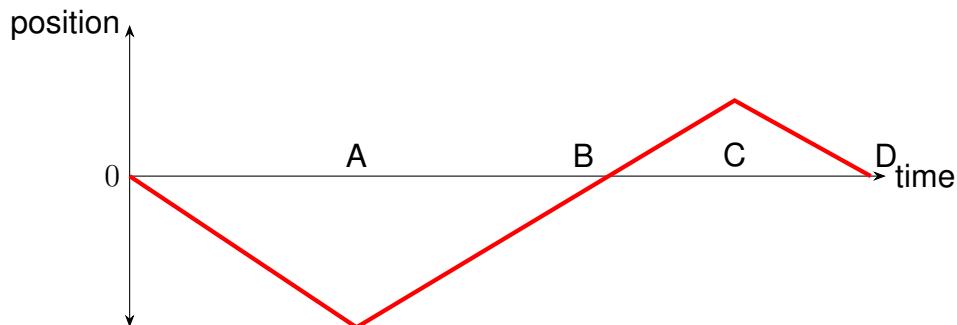
- a. zero.
- b. less than its initial speed.
- c. equal to its initial speed.
- d. greater than its initial speed.

11. Which velocity-time graph represents motion with constant positive acceleration?



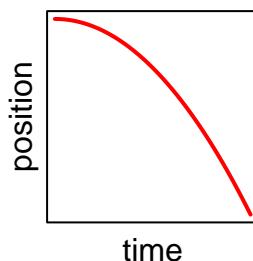
- a. Graph A
- b. Graph B
- c. Graph C
- d. Graph D

12. The motion of an object is described by the following position-time graph. At which point in time is the magnitude of the object's displacement at a maximum?



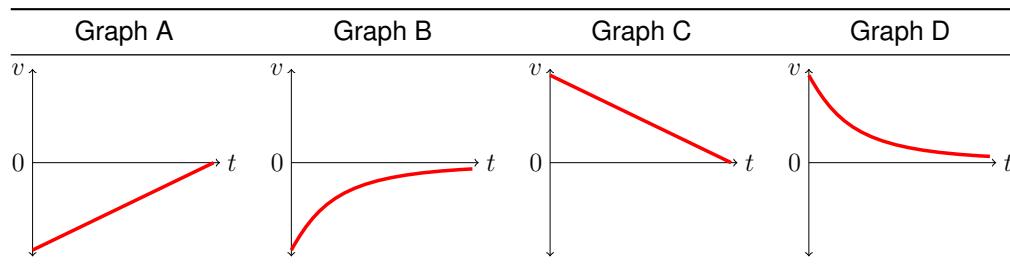
- a. Point A
- b. Point B
- c. Point C
- d. Point D

13. Which choice best matches the given position-time graph?



- a. moving to the right and speeding up.
- b. moving to the right and slowing down.
- c. moving to the left and speeding up.
- d. moving to the left and slowing down.

14. What is the magnitude of the slope of a position-time graph?
- distance
 - displacement
 - velocity
 - speed
15. Which velocity-time graphs represent the motion of an object that is slowing down? *Select all that apply.*



- a. Graph A
 b. Graph B
 c. Graph C
 d. Graph D
16. How many seconds would it take the Sun's light to reach Earth? The speed of light in vacuum is 3.00×10^8 m/s. The Sun is 1.5×10^{11} m from the Earth.
- 0 s
 - 2.0×10^{-3} s
 - 5.0×10^2 s
 - 4.5×10^{19} s
17. A light-year (ly) is the distance that light travels in vacuum in one year. The speed of light is 3.00×10^8 m/s. How many miles are there in a light-year?
 (1 mile = 1.609×10^3 m, 1 year = 365 days)
- 5.88×10^{12} mi
 - 9.46×10^{12} mi
 - 5.88×10^{15} mi
 - 9.46×10^{15} mi
18. A car travels 49 km at 47 km/h and 172 km at 82 km/h. What is the average speed for this trip?
- 70 km/h
 - 80 km/h
 - 68 km/h
 - 72 km/h
19. A car accelerates from 31 km/h to 103 km/h, at an average rate of 3 m/s^2 . How much time does it take to complete this speed increase?
- 24 s
 - 48.2 s
 - 5.6 s
 - 6.67 s

20. An F1 car accelerates from 0 to 60 miles per hour in 2.59 s. What is the acceleration of the car in SI units? (1 mile = 1609.34 m)
- 7.21 m/s²
 - 10.4 m/s²
 - 23.2 m/s²
 - 9.15 m/s²
21. A golf ball is hit with an initial velocity of 53 m/s at an angle of 80° above the horizontal. What is its range (horizontal distance before hitting the ground)? Ignore air resistance and assume a flat golf course.
- 115 m
 - 104 m
 - 105 m
 - 98 m
22. A ball tossed straight up returns to its starting point in 3 s. What was its initial speed? Ignore air resistance.
- 18.5 m/s
 - 22 m/s
 - 15.8 m/s
 - 14.7 m/s
23. What is the maximum height reached by a ball thrown straight up with an initial velocity of 19.6 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).
- 19.6 m
 - 24 m
 - 19 m
 - 17.5 m
24. A person throws a rock horizontally, with an initial velocity of 25.7 m/s, from a bridge. It falls 6.2 m to the water below. How far does it travel horizontally before striking the water?
- 28.7 m
 - 22 m
 - 28.9 m
 - 17.9 m
25. A ball is thrown straight up with an initial velocity of 38.1 m/s. How long does it take the ball to return to its starting point? Assume that the ball is thrown on the surface of the Earth and that it is undergoing constant acceleration due to gravity (ignore air resistance).
- 0.91 s
 - 7.78 s
 - 1.49 s
 - 4.84 s