



McRoberts Secondary

Kinematics Retest 2 2025-11-05



Personal Data

Family Name:	
Given Name:	
Signature:	
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Registration Number

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

Scrambling

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Type

025

Exam ID(Physics 11)

25110500004

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

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	a	b	c	d

Answers 16 - 25

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	a	b	c	d

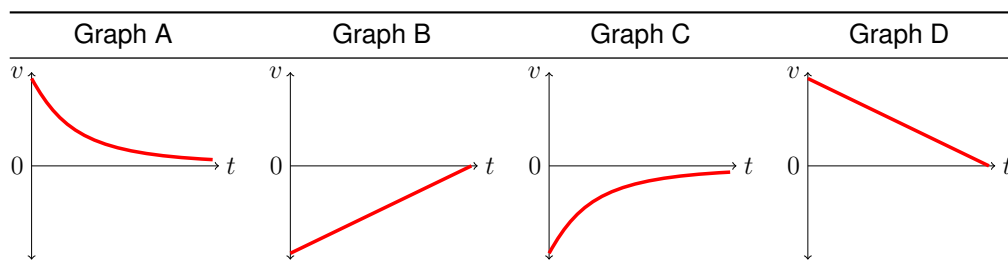


1. True or false? If an object is moving to the right, then its velocity must also be to the right.
 - a. True
 - b. False
2. True or false? If the velocity-time graph of an object is a horizontal line, then the object must be at rest.
 - a. True
 - b. False
3. True or false? If the velocity vector and the acceleration vector both point in the same direction, then the object must be speeding up.
 - a. True
 - b. False
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? The area under a velocity-time graph is the displacement.
 - a. True
 - b. False
6. The gravitational acceleration on Mars is about one-third of that on Earth. If you hit a baseball on Mars with the same speed and angle that you do on Earth, the ball would land
 - a. 1/9 times as far
 - b. 1/3 times as far
 - c. 3 times as far
 - d. 9 times as far
7. 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.
8. 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 $2v$?
 - a. $2d$
 - b. d
 - c. $\sqrt{2}d$
 - d. $4d$
9. Which has the greater acceleration: a car that increases its speed from 50 to 60 km/h, or a bike that goes from 0 to 10 km/h in the same time?
 - a. The car has the greater acceleration.
 - b. The bike has the greater acceleration.
 - c. The car and the bike have the same acceleration.
 - d. Not enough information given to determine the answer.

10. An athlete throws a javelin at four different angles above the horizontal, each with the same speed: 30° , 40° , 60° , 80° . Which two throws cause the javelin to land the same distance away?

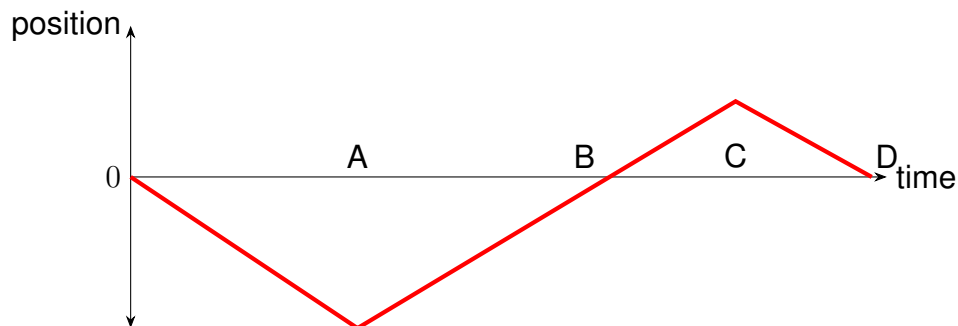
- a. 30° and 60°
- b. 40° and 80°
- c. 30° and 80°
- d. 40° and 60°

11. 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

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?

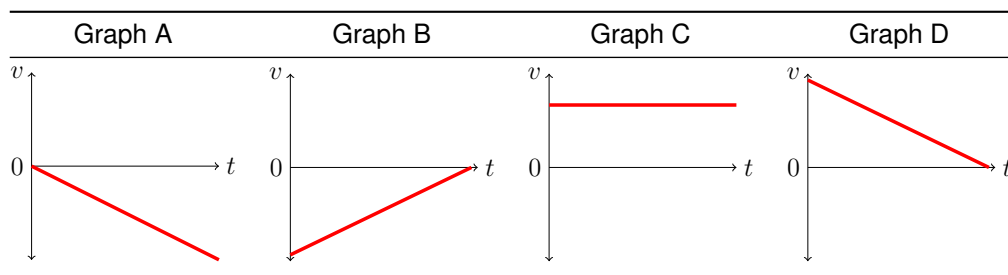


- a. Point A
- b. Point B
- c. Point C
- d. Point D

13. What is the magnitude of the slope of a position-time graph?

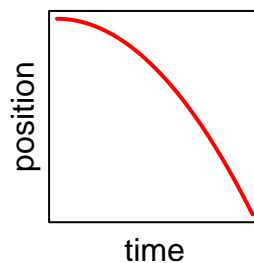
- a. speed
- b. acceleration
- c. distance
- d. pace

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



- Graph A
- Graph B
- Graph C
- Graph D

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



- moving to the right and speeding up.
 - moving to the right and slowing down.
 - moving to the left and speeding up.
 - moving to the left and slowing down.
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 particle initially moving with a velocity of 2 m/s in the x-direction experiences a constant acceleration of 1 m/s^2 in the x-direction and -2 m/s^2 in the y-direction. What are the velocity components of the particle after 4 s?
- $v_x = 6 \text{ m/s}, v_y = -8 \text{ m/s}$
 - $v_x = 4 \text{ m/s}, v_y = -8 \text{ m/s}$
 - $v_x = -6 \text{ m/s}, v_y = 4 \text{ m/s}$
 - $v_x = 3 \text{ m/s}, v_y = -2 \text{ m/s}$

19. Suppose an object travels at a constant velocity of 95.0 km/h. What distance would it travel in 25.0 minutes?
- 26.2 km
 - 571 km
 - 2380 km
 - 39.6 km
20. A car with good tires on a dry road can decelerate at about 5.0 m/s^2 when braking. If the car travels with an initial velocity of 87 km/h and brakes under such conditions, what distance would it travel before it stops?
- 58 m
 - 757 m
 - 44 m
 - 27 m
21. A person throws a rock straight down from a bridge with an initial speed of 12 m/s. It falls 21.8 m to the water below. How much time does it take for the rock to hit the water?
- 1.12 s
 - 0.73 s
 - 1.21 s
 - 0.9 s
22. A golf ball is hit with an initial velocity of 56 m/s at an angle of 63° above the horizontal. What is its range (horizontal distance before hitting the ground)? Ignore air resistance and assume a flat golf course.
- 259 m
 - 211 m
 - 204 m
 - 164 m
23. What is the maximum height reached by a ball thrown straight up with an initial velocity of 15.6 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).
- 12.4 m
 - 13.4 m
 - 15.5 m
 - 20.9 m
24. A ball tossed straight up returns to its starting point in 4.51 s. What was its initial speed? Ignore air resistance.
- 12.4 m/s
 - 26 m/s
 - 22.1 m/s
 - 28 m/s
25. A person throws a rock horizontally, with an initial velocity of 33.1 m/s, from a bridge. It falls 8.3 m to the water below. How far does it travel horizontally before striking the water?
- 60.4 m
 - 30.7 m
 - 29.2 m
 - 43.1 m