

McRoberts Secondary

Kinematics Retest 2 2025-11-05



Personal Data

Family Name:

Given Name:

Signature:

checked

Registration Number

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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)
25110500004

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
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	a	b	c	d

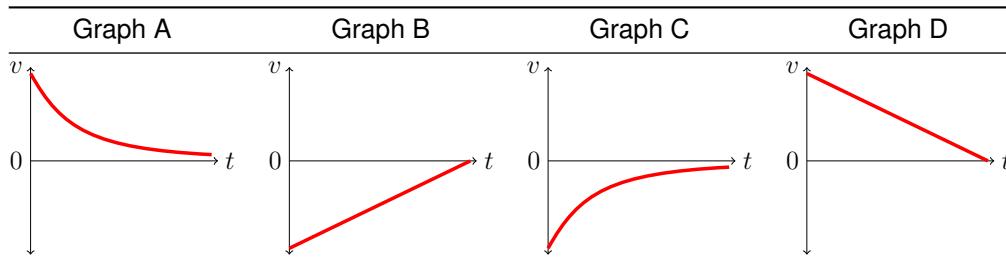


1. True or false? If an object is moving to the right, then its velocity must also be to the right.
 - a. True
 - b. False
2. True or false? If the velocity-time graph of an object is a horizontal line, then the object must be at rest.
 - a. True
 - b. False
3. True or false? If the velocity vector and 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.

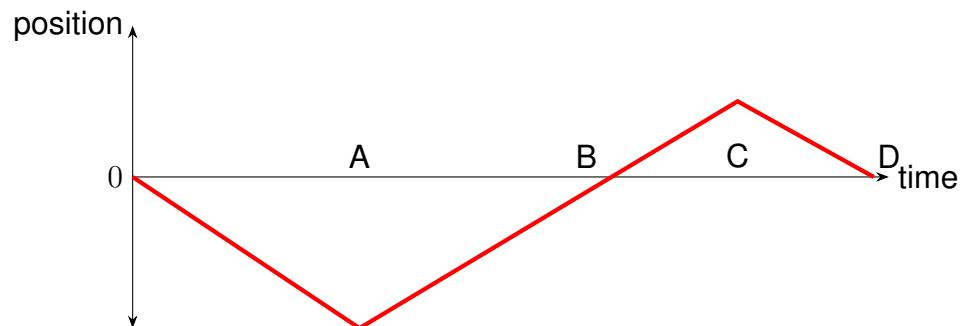
10. An athlete throws a javelin at four different angles above the horizontal, each with the same speed: 30° , 40° , 60° , 80° . Which two throws cause the javelin to land the same distance away?

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

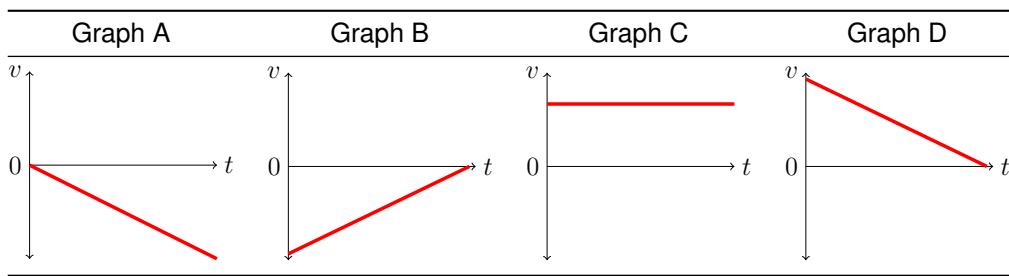
11. Which velocity-time graphs represent the motion of an object that is slowing down? *Select all that apply.*



- 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?



- a. Graph A
b. Graph B
c. Graph C
d. Graph D
15. Which choice best matches the given position-time graph?
-
- position
- time
- 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.
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.
- a. 0 s
b. 2.0×10^{-3} s
c. 5.0×10^2 s
d. 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)
- a. 5.88×10^{12} mi
b. 9.46×10^{12} mi
c. 5.88×10^{15} mi
d. 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/s² in the x -direction and -2 m/s² in the y -direction. What are the velocity components of the particle after 4 s?
- a. $v_x = 6$ m/s, $v_y = -8$ m/s
b. $v_x = 4$ m/s, $v_y = -8$ m/s
c. $v_x = -6$ m/s, $v_y = 4$ m/s
d. $v_x = 3$ m/s, $v_y = -2$ 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