



# McRoberts Secondary



## Physics 11 Kinematics Unit Test 2025-10-06



### 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

025

Exam ID(Physics 11)

25100600001

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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### Answers 16 - 25

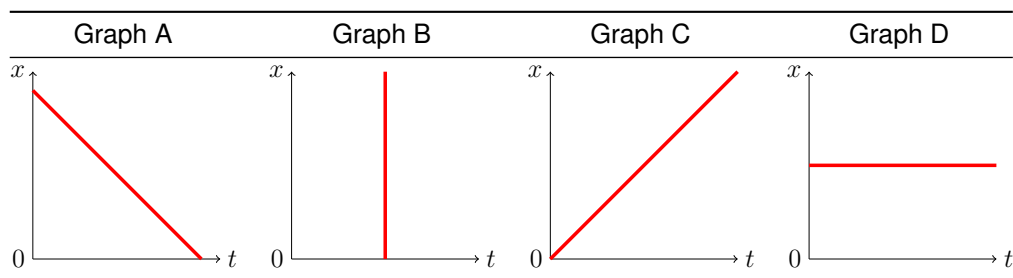
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a b c d



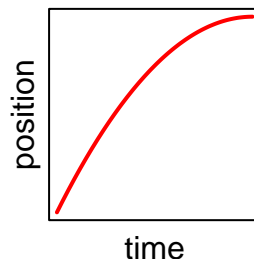


1. True or false? When a ball is thrown straight up, its acceleration at the top is zero.
  - a. True
  - b. False
2. True or false? When you throw a ball to your friend, the ball's acceleration is zero when it reaches its maximum height.
  - a. True
  - b. False
3. True or false? It is possible to have zero acceleration and still be moving.
  - a. True
  - b. False
4. True or false? When a ball is thrown straight up, its velocity at the top is zero.
  - a. True
  - b. False
5. True or false? When you throw a ball over to your friend, the ball's velocity is zero when it reaches its maximum height.
  - a. True
  - b. False
6. Can an object's velocity change direction when its acceleration is constant?
  - a. No, because the object is always speeding up.
  - b. No, because the object is always speeding up or slowing down, but it can never turn around.
  - c. Yes, a rock thrown straight up is an example.
  - d. Yes, a car that starts from rest, speeds up, slows to a stop, and then backs up is an example.
7. Which position-time graph represents an object at rest?



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

8. 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.
9. Consider a ball that is thrown upwards and which then falls back down. If up is the positive direction, then the ball's velocity
- a. is always positive.
  - b. is always negative.
  - c. starts positive, then becomes negative.
  - d. starts negative, then becomes positive.
10. 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.
11. Two balls are thrown from the top of a building. One is thrown straight up while the other is thrown straight down, both with same initial speed. If air resistance can be ignored, how do their speeds compare when they hit the ground?
- a. The ball thrown up is going faster.
  - b. The ball thrown down is going faster.
  - c. Both balls are going the same speed.
  - d. It is impossible to determine with the given information.
12. The acceleration of gravity on the Moon is one-sixth of that on Earth. If you hit a baseball on the Moon with the same speed and angle that you would on Earth, the ball would land
- a. the same distance away
  - b. one-sixth as far
  - c. 6 times as far
  - d. 36 times as far
13. Suppose that several projectiles are launched. Which one will be in the air for the longest time?
- a. The one with the furthest horizontal range.
  - b. The one with the greatest maximum height.
  - c. The one with the greatest initial speed.
  - d. None of the above.

14. A package of supplies is dropped from a plane flying at a constant velocity. Five seconds later, a second package is dropped. Neglecting air resistance, the horizontal distance between the falling packages will
- increase
  - decrease
  - be constant
  - any of the above depending on the weight of the packages
15. Which of the following are vectors? *Select all that apply.*
- displacement
  - time
  - distance
  - speed
16. A fighter plane is launched from a catapult on an aircraft carrier. Starting from rest, it reaches a speed of 258 km/h in 2.56 s. Assuming constant acceleration, what is the length of the aircraft catapult?
- 330 m
  - 285 m
  - 183 m
  - 91.7 m
17. A truck travels at 30 km/h for 2 hours and at 108 km/h for 9 hours. What is the average speed for the trip?
- 88.6 km/h
  - 93.8 km/h
  - 69 km/h
  - 100 km/h
18. An airplane increases its speed from 147 m/s to 242 m/s, at an average rate of  $6 \text{ m/s}^2$ . How much time does it take to complete this speed increase?
- 0.06 s
  - 158 s
  - 15.8 s
  - 377 s
19. Suppose an object travels at a constant velocity of 62.0 km/h. What distance would it travel in 22.0 minutes?
- 317 km
  - 20 km
  - 1360 km
  - 22.7 km
20. A car accelerates from 34 km/h to 99 km/h, at an average rate of  $1 \text{ m/s}^2$ . How much time does it take to complete this speed increase?
- 18.1 s
  - 5.37 s
  - 8.22 s
  - 65 s

21. A person throws a rock straight down from a bridge with an initial speed of 37.3 m/s. It falls 30.5 m to the water below. How much time does it take for the rock to hit the water?
- a. 0.66 s
  - b. 0.49 s
  - c. 0.71 s
  - d. 0.74 s
22. A ball tossed straight up returns to its starting point in 6.58 s. What was its initial speed? Ignore air resistance.
- a. 32.2 m/s
  - b. 34.7 m/s
  - c. 40.6 m/s
  - d. 43.7 m/s
23. What is the maximum height reached by a ball thrown straight up with an initial velocity of 23.9 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. 29.1 m
  - b. 39.6 m
  - c. 34.4 m
  - d. 57.3 m
24. A person throws a rock horizontally, with an initial velocity of 32.9 m/s, from a bridge. It falls 1.04 m to the water below. How far does it travel horizontally before striking the water?
- a. 15.2 m
  - b. 11.9 m
  - c. 15.9 m
  - d. 19.5 m
25. A golf ball is hit with an initial velocity of 10 m/s at an angle of  $20^\circ$  above the horizontal. What is its range (horizontal distance before hitting the ground)? Ignore air resistance and assume a flat golf course.
- a. 6 m
  - b. 4 m
  - c. 7 m
  - d. 8 m