McRoberts Secondary

Kinematics Retest 3 2025-11-26

Personal Data

Family Name:

Given Name:

Signature:

checked

Registration Number

0	☐	☐	☐	☐	☐	☐	☐	0
1	☐	☐	☐	☐	☐	☐	☐	1
2	☐	☐	☐	☐	☐	☐	☐	2
3	☐	☐	☐	☐	☐	☐	☐	3
4	☐	☐	☐	☐	☐	☐	☐	4
5	☐	☐	☐	☐	☐	☐	☐	5
6	☐	☐	☐	☐	☐	☐	☐	6
7	☐	☐	☐	☐	☐	☐	☐	7
8	☐	☐	☐	☐	☐	☐	☐	8
9	☐	☐	☐	☐	☐	☐	☐	9

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

Scrambling 0 0

Type: 025

Exam ID(Physics 11): 25112600002

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

	a	b	c	d
1	☐	☐		
2	☐	☐		
3	☐	☐		
4	☐	☐		
5	☐	☐		
6	☐	☐	☐	☐
7	☐	☐	☐	☐
8	☐	☐	☐	☐
9	☐	☐	☐	☐
10	☐	☐	☐	☐
11	☐	☐	☐	☐
12	☐	☐	☐	☐
13	☐	☐	☐	☐
14	☐	☐	☐	☐
15	☐	☐	☐	☐
	a	b	c	d

Answers 16 - 25

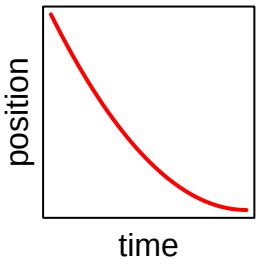
	a	b	c	d
16	☐	☐	☐	☐
17	☐	☐	☐	☐
18	☐	☐	☐	☐
19	☐	☐	☐	☐
20	☐	☐	☐	☐
21	☐	☐	☐	☐
22	☐	☐	☐	☐
23	☐	☐	☐	☐
24	☐	☐	☐	☐
25	☐	☐	☐	☐
	a	b	c	d

1. True or false? If an object is moving to the right, then its acceleration 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? The area under a velocity-time graph is the displacement.
   a. True
   b. False
4. 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
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. An object is moving to the right 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.
7. 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.
8. The gravitational acceleration on the Moon is about one-sixth of that on Earth. If you throw a baseball straight up with the same speed on the Moon as you do on Earth, the ball would be in the air for
   a. the same amount of time as on Earth.
   b. 6 times longer than on Earth
   c. 12 times longer than on Earth
   d. 36 times longer than on Earth
9. 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.

10. Suppose that several projectiles are launched. Which one will be in the air for the longest time?

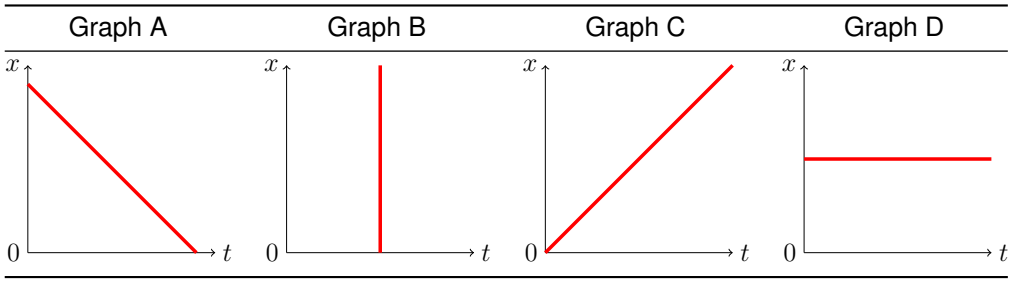
    a. The one with the furthest horizontal range.
    b. The one with the greatest maximum height.
    c. The one with the greatest initial speed.
    d. None of the above.

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



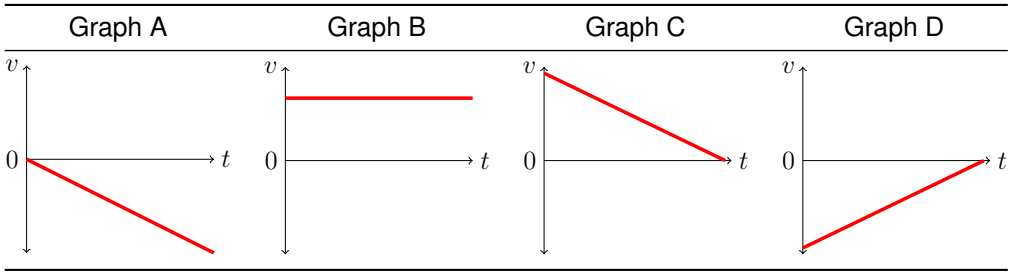
    a. moving to the right and speeding up.
    b. moving to the right and slowing down.
    c. moving to the left and speeding up.
    d. moving to the left and slowing down.

12. Which position-time graph represents an object at rest?



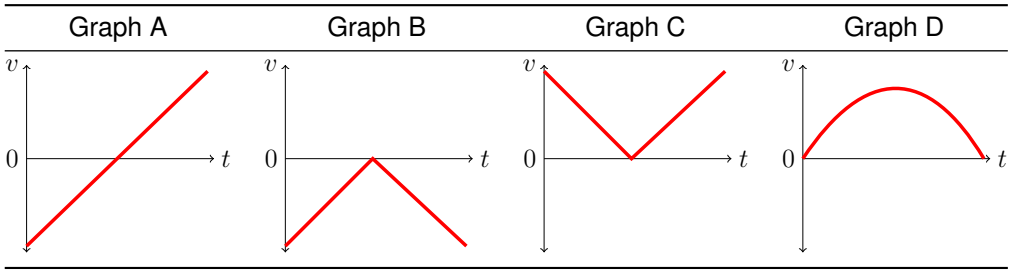
    a. Graph A
    b. Graph B
    c. Graph C
    d. Graph D

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



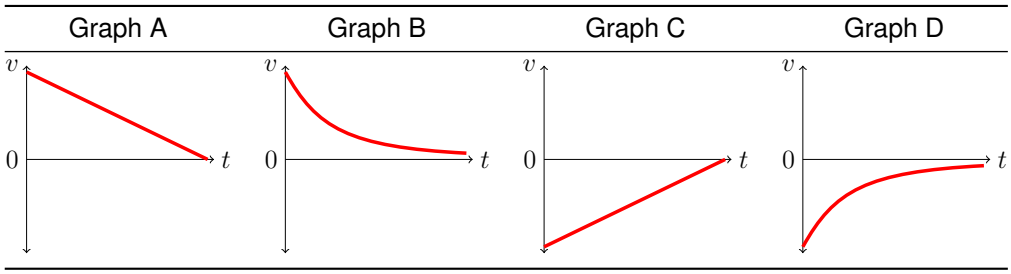
    a. Graph A
    b. Graph B
    c. Graph C
    d. Graph D

14. Which velocity-time graph represents the motion of an object that changes its direction?



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

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. Suppose an object travels at a constant velocity of 1.06 m/s. How much time would it take for the object to travel a distance of 94.5 m?

a. 89.2 s
b. 48.7 s
c. 100 s
d. 0.01 s

17. A car accelerates from 36 km/h to 106 km/h, at an average rate of 1 m/s^2. How much time does it take to complete this speed increase?

a. 62.3 s
b. 70 s
c. 35.4 s
d. 19.4 s

18. A car travels 50 km at 42 km/h and 295 km at 108 km/h. What is the average speed for this trip?

a. 56 km/h
b. 88 km/h
c. 42 km/h
d. 80 km/h

19. An F1 car accelerates from 0 to 60 miles per hour in 2.79 s. What is the acceleration of the car in SI units? (1 mile $=$ 1609.34 m)

    a. 9.61 m/s^2
    b. 21.5 m/s^2
    c. 5.48 m/s^2
    d. 6.55 m/s^2

20. A runner completes a marathon (42.195 km) with an average pace of 7 minutes and 30 seconds per kilometre. What is the runner's time for the marathon? (Answers are formatted as hours : minutes : seconds)

    a. 07 : 16 : 57
    b. 04 : 44 : 04
    c. 05 : 16 : 28
    d. 05 : 08 : 00

21. What is the maximum height reached by a ball thrown straight up with an initial velocity of 24.8 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. 31.4 m
    b. 47.7 m
    c. 39.5 m
    d. 33.7 m

22. A person throws a rock horizontally, with an initial velocity of 20.5 m/s, from a bridge. It falls 5.63 m to the water below. How far does it travel horizontally before striking the water?

    a. 29.2 m
    b. 27.7 m
    c. 22 m
    d. 29.3 m

23. A ball tossed straight up returns to its starting point in 2.12 s. What was its initial speed? Ignore air resistance.

    a. 10.4 m/s
    b. 7 m/s
    c. 5.3 m/s
    d. 9.4 m/s

24. A golf ball is hit with an initial velocity of 70 m/s at an angle of 79° above the horizontal. What is its range (horizontal distance before hitting the ground)? Ignore air resistance and assume a flat golf course.

    a. 261 m
    b. 131 m
    c. 220 m
    d. 187 m

25. A ball is thrown straight up with an initial velocity of 11.6 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).

    a. 1.92 s
    b. 2.37 s
    c. 4.4 s
    d. 2.2 s