

3

100%

Motion in a Straight Line

16. Kinematics: Describing the Position of Objects

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Lesson

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Review

Select the correct answer.

What is the first step in finding the position of an object?

ATTEMPT 1

- construct a position-time graph
- evaluating the object's movement
- measuring the object's position and recording the time
- identifying a reference point ✓

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To identify the position of an object you must first specify a reference point, this is often the origin of the Cartesian coordinate system.

ATTEMPT 1

Select the correct answer from the drop-down menu.

In the formula $\boldsymbol{r}(t) = \boldsymbol{v}t + \boldsymbol{r}_0$, the variable $\boldsymbol{r}_0$ represents the 1. initial position ✓ .

1. initial position ✓

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In the formula $\boldsymbol{r}(t) = \boldsymbol{v}t + \boldsymbol{r}_0$, the variable $\boldsymbol{r}_0$ represents the initial position.

Select the correct answer.

The equation $\boldsymbol{r}(t) = (6\ \text{m/s})t + 4\ \text{m}$ is used to calculate an object's position (in meters) as it changes with time (s). What is the position of the object at a time, $t = 3$ seconds? And what is the displacement that took place in those 3 seconds?

ATTEMPT 1

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- The position = 18 m
  The displacement = 22 m
- The position = 18 m
  The displacement = 6 m
- The position = 12 m
  The displacement = 4 m
- The position = 22 m
  The displacement = 18 m ✓

Select the correct answer.

A cat stands 1 meter from a wall and then runs 5 meters farther before stopping. The run takes the cat 2 seconds with a constant velocity. What equation can be used to express the cat's change in position?



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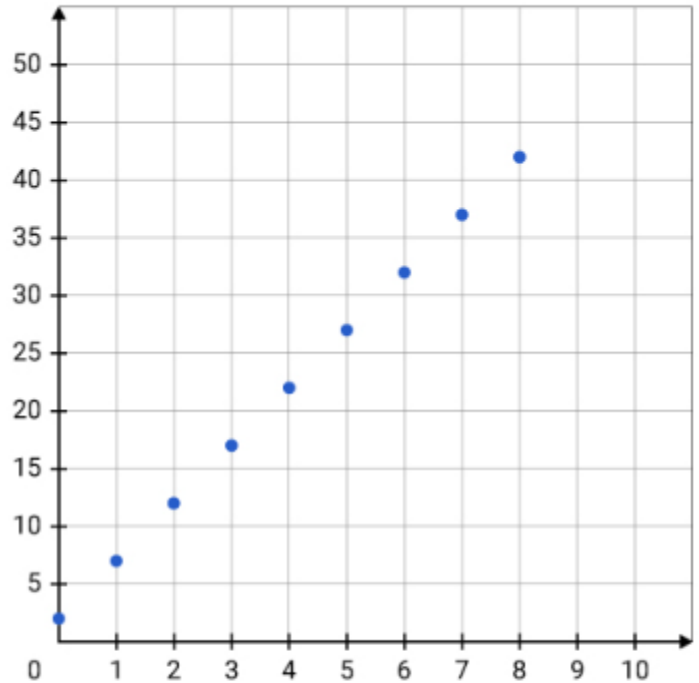
- $5\ \text{m}(2\ \text{s}) = vt + 1\ \text{s}$
- $r(t) = (5\ \text{m/s})(2\ \text{s}) + 1\ \text{m}$
- $6\ \text{m} = (2.5\ \text{m/s})(2\ \text{s}) + 1\ \text{m}$ ✓
- $5\ \text{m} = v(2\ \text{s}) + 1\ \text{m}$

Select the correct answers from the drop-down menus.

This kinematic graph shows the rate at which an object moves, the vertical *y*-axis represents the

1. position ✓ and the horizontal axis represents

2. time ✓ .



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1. position ✓

2. time ✓

This kinematic graph shows the rate at which an object moves, the vertical *y*-axis represents the position and the horizontal *x*-axis represents time.

Select the correct answer from the drop-down menu.

Motion **must** involve a change in 1. position ✓ .

1. position ✓

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Motion must involve a change in position. Speed can be constant and it is not a must to have a change in speed.