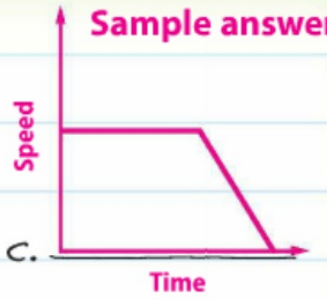
Sample answer:




c.

Show your work.

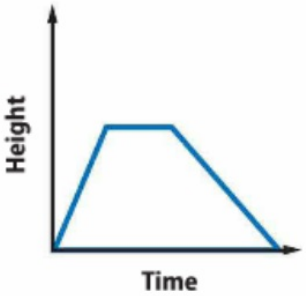
**Got It?** **Do this problem to find out.**

**c.** A car is traveling at a constant speed. The car slows down steadily to come to rest at a stop light. Sketch a qualitative graph to represent the situation.

## Guided Practice

Check

**1.** The graph below displays the height of an airplane. Describe the change in the airplane's height over time. (Example 1)

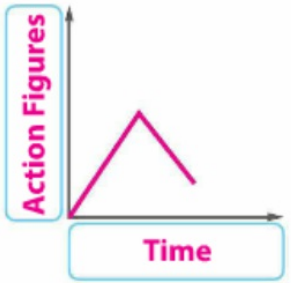



Show your work.

**Sample answer: The airplane takes off from the ground and its height increases at a constant rate. The plane levels off in the air. Then it descends towards the ground at a slower steady rate than which it ascended.**

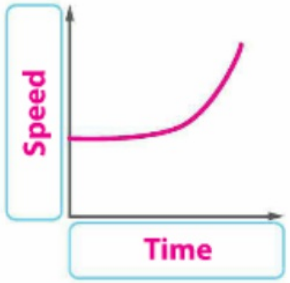
**2.** Jamaal purchased the same number of action figures daily for one week. Over the next week, he sold most of them on the Internet. Sketch a qualitative graph to represent the situation. (Examples 2 and 3)

**Sample answer:**



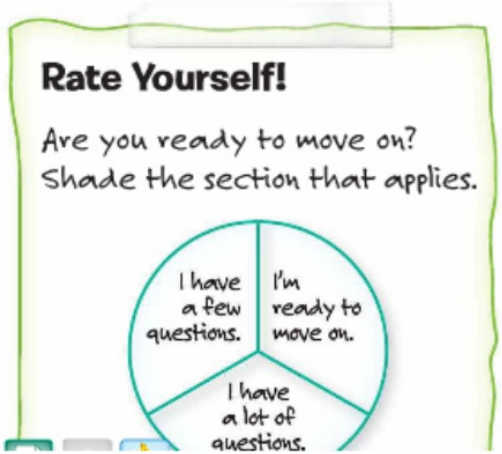

**3.** Tamar rides her bicycle at a steady rate. She coasts downhill which increases her speed at increasing rates. Sketch a qualitative graph to represent the situation. (Examples 2 and 3)

**Sample answer:**



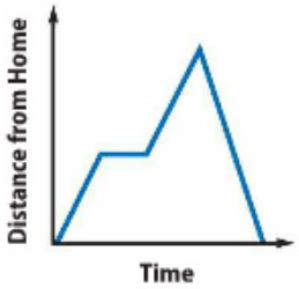

**4.** **Building on the Essential Question** What are some advantages of displaying the relationship between two quantities using a qualitative graph?

**Sample answer: By displaying the relationship using a qualitative graph, you do not need to know or label the specific numerical values. The qualitative graph will show whether the relationship is increasing, decreasing, remains constant, or some other pattern.**



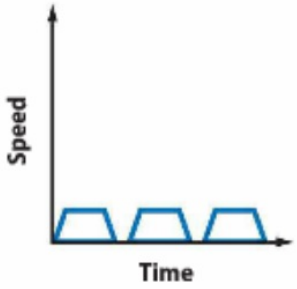
**1** The graph below displays the distance from Luis' home as he walks his dog in his neighborhood. Describe the change in the distance from his home over time. (Example 1)

Show your work.




**Sample answer: Luis starts out from his home. He walks away from his home, stops to let the dog run around, and walks further away from home. Then he walks towards home.**

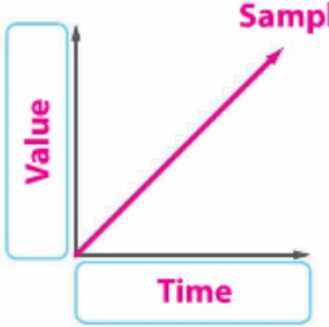
**2.** The graph below displays the speed of a city bus as it stops frequently to pick up passengers. Describe the change in the speed over time. (Example 1)




**Sample answer: The speed of the bus increases at a constant rate, then remains constant, and then slows down. As it is picking up passengers, the speed is zero. This pattern continues.**

3 A grand piano that is over 100 years old has increased in value rapidly from when it was first purchased. Sketch a qualitative graph to represent this situation. (Examples 2 and 3)

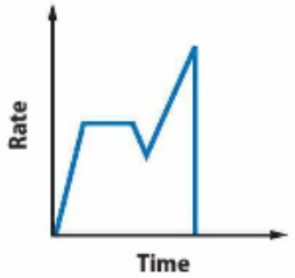
**Sample answer:**




4. An athlete alternates between running and walking during a workout. Sketch a qualitative graph to represent this situation. (Examples 2 and 3)

**Sample answer:**

5. CCSS **Reason Abstractly** Use the graph at the right which displays the rate at which Hector hiked along a path.




**a.** What situation could the horizontal line segment represent?

**Sample answer: Hector hikes at a steady rate.**

**b.** What situation could the vertical line segment represent?

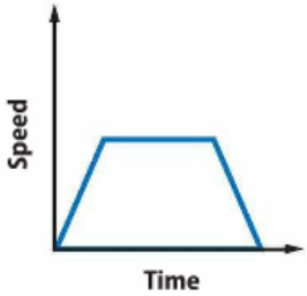
**Sample answer: Hector suddenly stops hiking.**

**c.** Did Hector's rate increase or decrease during the first portion of his hike? Explain your reasoning.

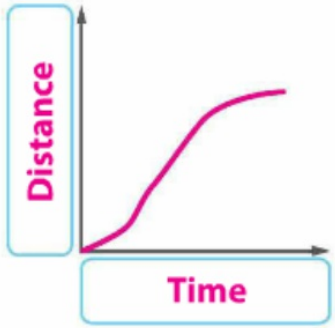
**increase; Sample answer: The graph rises from left to right at the beginning.**

## H.O.T. Problems Higher Order Thinking

6. CCSS **Persevere with Problems** The graph at the right displays the speed of a car as time increases.



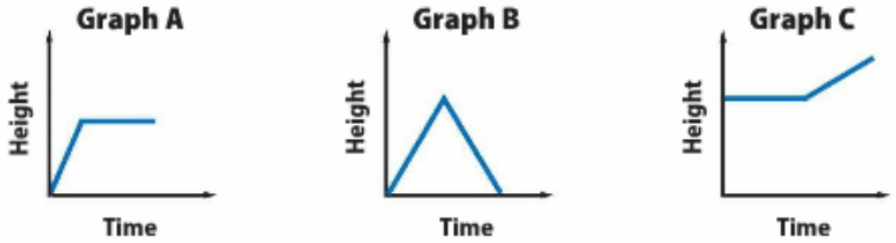

**a.** Draw a qualitative graph that represets the distance the car travels as time increases.




**b.** Describe how the distance changes as time passes.

**Sample answer: As the time increases, the distance increases at a varied rate and then levels off when the car stops.**

7. **Reason Inductively** A tree grows steadily. When it reaches a specific height, it stops growing. Which graph displays this relationship? Explain your reasoning to a classmate.




**Graph A; Sample answer: Graph A increases from left to right at a constant rate then levels off. This represents a tree growing steadily before it stops growing.**

8. **Reason Inductively** The graph below represents the height of a rocket after being launched.

Describe the change in the height of the rocket over time.

**Sample answer: The height of the rocket increases as the time after launch increases.**