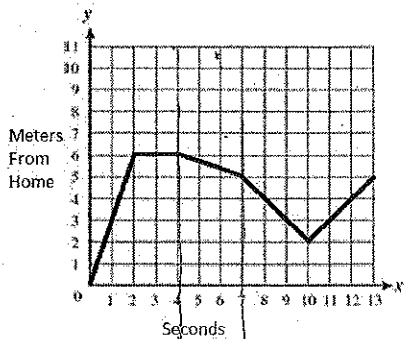


8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

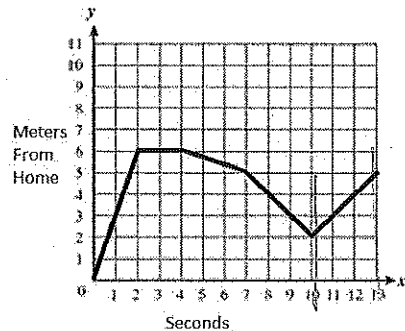
The following Graph represents Mel and her distance from home.



When is Mel at home?

- a. 0 seconds
- b. 4 seconds
- c. 10 seconds
- d. 13 seconds

The following Graph represents Mel and her distance from home.



When is Mel traveling the fastest?

- a. 0-2 seconds
- b. 4-7 seconds
- c. 7-10 seconds
- d. 10-13 seconds

Which best describes what Mel is doing from 4-7 seconds.

- a. Running away from home
- b. Driving towards home
- c. Staying in the same position
- d. Walking toward home

Which best describes what Mel is doing from 10-13 seconds.

- a. Walking away from home
- b. Walking towards home
- c. Staying in the same position
- d. Walking up the stairs in her house

The graph shows the temperature over a 12-hour period.

Part A: Why does this graph represent a function? Explain your answer.   
 Each input has only one output.

Part B: Analyze the graph to describe where the function is increasing or decreasing. Include how the graph differs in the two input intervals of the function in your analysis. Justify your answer.

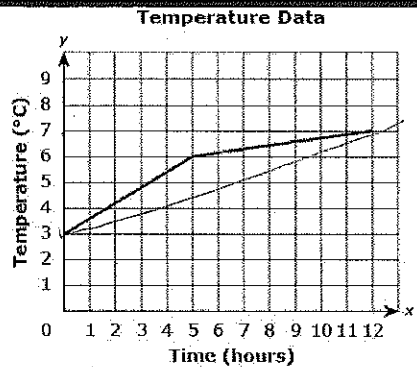
0-5 hours increasing rate of  $\frac{3}{5}$  hrs.  
6-12 hours increasing slower rate of  $\frac{1}{7}$  hrs

Part C: Write an equation for a single linear function that includes both endpoints of the graph. Show your work. (Recognize that you are creating this line from the two endpoints.)

$$m = \frac{4}{12} = \frac{1}{3} \quad b = 3$$

$$y = \frac{1}{3}x + 3$$

↓ Hint:  
draw a right triangle using the endpoints.



8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

Use the graph below to answer the first 3 questions.

Natalie kept track of the number of soccer games her team won each year.



Between which years did the team show the highest increase in games won?

- a. 1985-1986
- b. 1986-1987
- c. 1987-1988
- d. 1988-1989

Which best describes the interval between 1988 and 1989?

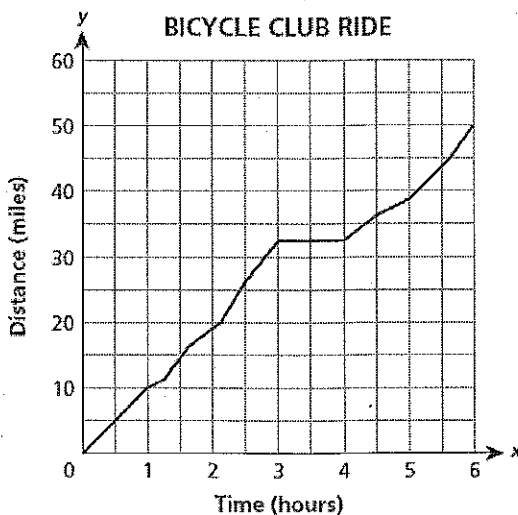
- a. The team decreased their number of wins by 2 games.
- b. The team increased their number of wins by 2 games.
- c. The team increased the number of games they played by 2.
- d. The team decreased the number of games they played by 2.

Natalie says her team won the state championship the year they won 18 games. What year did they win the state championship?

- a. 1985
- b. 1986
- c. 1988
- d. 1989

hour

A bicycle club went on a six ~~mile~~ <sup>hour</sup> ride. The graph below shows the relationship between the number of hours spent on the trails and the number of miles traveled.



Which best describes the trip?

- a. The club members rode at a constant rate of speed the entire ride.
- b. The club members stopped for a rest during their ride..
- c. The number of miles traveled increased continuously throughout the entire ride.
- d. The number of miles traveled increased some of the time and decreased some of the time.

Which description best matches the first hour of the trip?

- a. The club members traveled at a constant rate of 10 miles per hour.
- b. The club members rode up hill for the first hour of the trip.
- c. The club members rode in a straight line.
- d. The club members traveled at a constant rate of 1 mile per hour.

During which hours of the trip was the club taking a break?

- a. Between hours 1 and 2
- b. Between hours 2 and 3
- c. Between hours 3 and 4
- d. Between hours 4 and 5