

Algebra 1

Chapter 5

Section 5-1

May 13-10:02 PM

Speed

The table shows how quickly the Thanksgiving Day Parade travels along the designated parade route. How fast does the parade travel?

<u>Time (min)</u>	<u>Distance (blocks)</u>
5	6
10	12
15	18
20	24

$$5 \text{ min} \rightarrow 6 \text{ blocks}$$
$$\frac{6}{5} = 1.2 \frac{\text{blocks}}{\text{min}}$$

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Unit Cost

The table below shows the pricing chart for a frozen turkey based on its weight. Describe the change in price for a turkey.

Weight (pounds)	Price (dollars)
20	31.00
21	32.50
22	34.00
23	35.50

\$1.50 per pound
1.50 $\frac{\$}{\text{pound}}$

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Rate of Change

$$\text{rate of change} = \frac{\text{change in dependent variable} \rightarrow Y}{\text{change in independent variable} \rightarrow X}$$

A student scores 98 on a test for one incorrect answer and scores 90 for five incorrect answers.

What are the independent and dependent variables?

incorrect answers \rightarrow score

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Rate of Change

$$\text{rate of change} = \frac{\text{change in dependent variable}}{\text{change in independent variable}} = \frac{-8}{4} = -2$$

A student's scores 98 on a test for one incorrect answer and scores 90 for five correct answers.

Is the rate of change positive or negative? What is the rate of change? Give correct units.

-2 percent question

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Rate of Change

$$\text{rate of change} = \frac{\text{change in dependent variable}}{\text{change in independent variable}}$$

A plant measures 24 inches tall at an age of two years and 27 inches tall three months later.

What are the independent and dependent variables?

age (months) height (inches)

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Rate of Change

$$\text{rate of change} = \frac{\text{change in dependent variable}}{\text{change in independent variable}} = \frac{3}{3}$$

A plant measures 24 inches tall at an age of two years and 27 inches tall three months later.

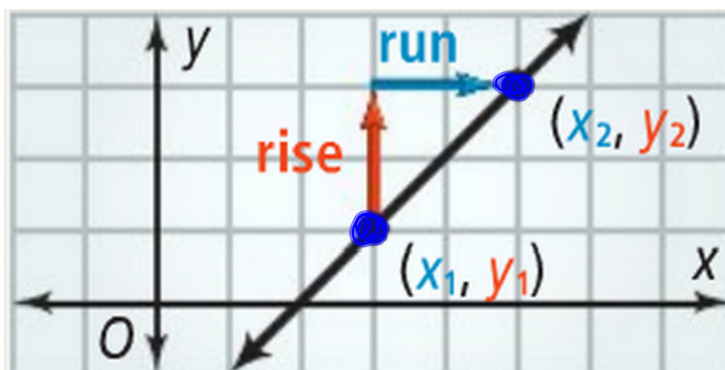
Is the rate of change positive or negative? What is the rate of change? Give correct units.

$$1 \frac{\text{inch}}{\text{month}}$$

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$$\text{rate of change} = \frac{\text{change in dependent variable}}{\text{change in independent variable}}$$

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{\text{rise}}{\text{run}} = \frac{2}{2} = 1$$

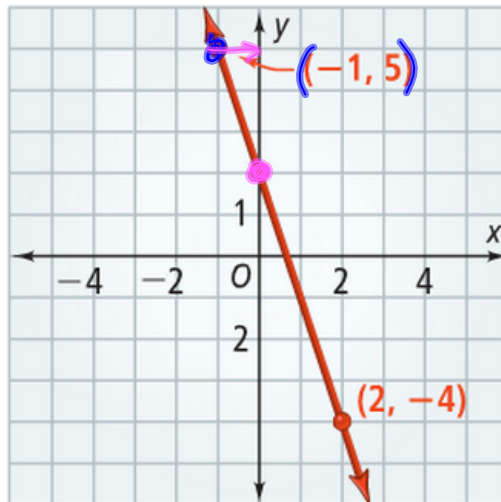


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Slope

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{\text{rise}}{\text{run}} = \frac{-3}{1} = -3$$

Find the slope of the line.



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Is the slope of a line always the same?

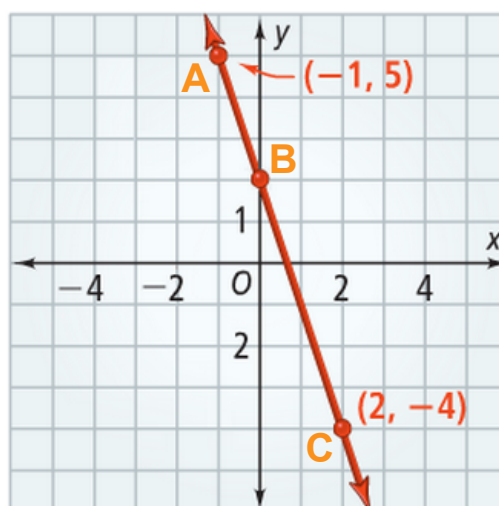
$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{\text{rise}}{\text{run}}$$

Are the slopes from A to B, B to C, and A to C all the same?

$$A \rightarrow B \quad \frac{-3}{1} = -3$$

$$B \rightarrow C \quad \frac{-6}{2} = -3$$

$$A \rightarrow C \quad \frac{-9}{3} = -3$$



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Slope

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{** for two points: } (x_1, y_1) \text{ and } (x_2, y_2)$$

Find the slope between the two points:

(2, 5) and (11, 6)

$$\frac{6-5}{11-2} = \frac{1}{9}$$

$$\frac{5-6}{2-11} = \frac{-1}{-9} = \frac{1}{9}$$

(-3, 6) and (1, -2)

$$\frac{6-(-2)}{-3-1} = \frac{8}{-4} = -2$$

$$\frac{-2-6}{1-(-3)} = \frac{-8}{4} = -2$$

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Slope

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{** for two points: } (x_1, y_1) \text{ and } (x_2, y_2)$$

Find the slope between the two points:

(8, -1) and (-2, -15)

$$\frac{-15-(-1)}{-2-8} = \frac{-14}{-10}$$

$$= \frac{14}{10}$$

$$= \frac{7}{5}$$

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Slope

$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} \quad \text{** for two points: } (x_1, y_1) \text{ and } (x_2, y_2)$$

Find the slope between the two points:

(7, 5) and (7, 14)

$$\frac{14-5}{7-7} = \frac{9}{0}$$

undefined slope

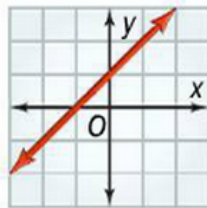
(0, -2) and (9, -2)

$$\frac{-2 - (-2)}{9 - 0} = \frac{0}{9} = 0$$

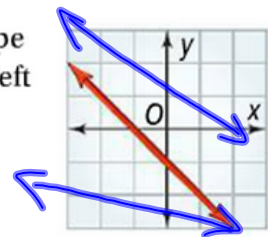
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Slopes of lines

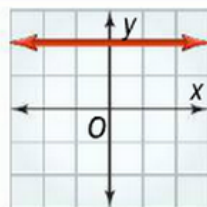
A line with positive slope slants upward from left to right.



A line with negative slope slants downward from left to right.



A line with a slope of 0 is horizontal.



A line with an undefined slope is vertical.



Which of these graphs are not function?

Nov 19-8:39 AM