Rate of Change = $\frac{\text{Change in the Dependent Variable}}{\text{Change in the Independent Variable}}$

Rate of Change = $\frac{\triangle Y}{\triangle X}$ Slope with units

Since the phrase Rate of Change applies when using "REAL" data you'll be expected to give units with your answer. Instead of fractions, give answers as decimals.

Find the rate of change. Given decimals answers to the nearest tenth.

Include units!

1 Calories burned while jogging

# Minutes	# Calories burned
2	52
3	78
4	104
5	130
6	156

2 Cost of Renting a Trailer

# hours	Rental Cost
3	$95
5	$125
7	$155
9	$185
11	$215

Δx: 9 − 3 = 6

Δy: 185 − 95 = 90

Rate of Change $\frac{\Delta y = 90}{\Delta x = 6}$ = $15/hr

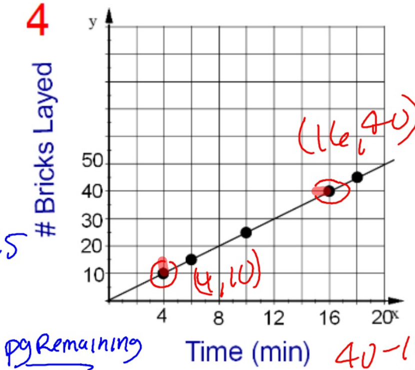
3 # Minutes remaining in the book

# Minutes	# Pages Remaining
4	571
8	566
20	551
24	546
30	538.5

$\Delta x = 6$ $\Delta y = -7.5$

Rate of change $\frac{-7.5}{6} = -1.25$ $\frac{\text{pg Remaining}}{\text{min}}$

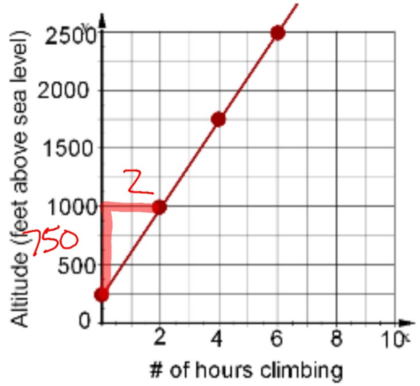
4



$\frac{40-10}{16-4} = \frac{30}{12}$

2.5 $\frac{\text{Bricks}}{\text{min}}$

5

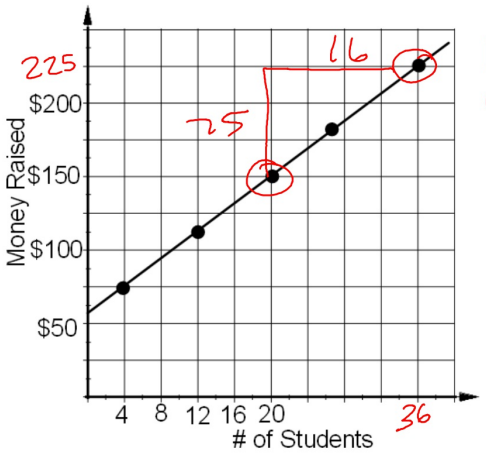


Rate of change $= \frac{750}{2} \frac{\text{ft}}{\text{hr}} = 375 \frac{\text{ft}}{\text{hr}}$

This represents how much the climbers altitude is increasing every hour climbed.

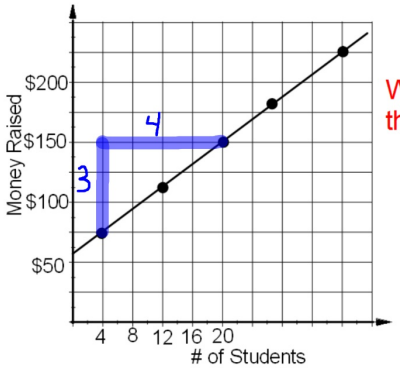
If the rate of change is constant then what will the graph of the data look like?

A linear function



Find the rate of change.

$\frac{\Delta y}{\Delta x} \frac{75}{16} = \$4.6875$/STUDENT



What would have to be true for the Rate of Change to be

$\frac{3}{4}$

The scale on the two axes MUST BE THE SAME

A line has a slope of $\frac{2}{3}$. If the line passes through the two points below what is the value of x?

(x , 1) and (-2 , 7)

$m = \frac{y_2 - y_1}{x_2 - x}$

$\frac{2}{3} = \frac{7-1}{-2-x}$

$2(-2-x) = 3 \cdot 6$

$-4-2x = 18$

$+4 \quad +4$

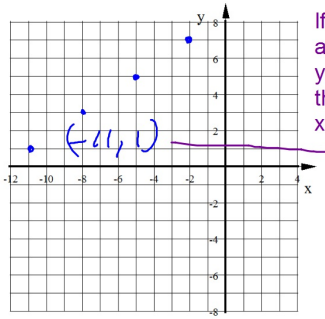
$\frac{-2x}{-2} = \frac{22}{-2}$

$x = -11$

A line has a slope of $\frac{2}{3}$. If the line passes through the two points below what is the value of x?

(x , 1) and (-2 , 7)

How could you use a graph to answer this question?



If you plot the point (-2,7) and use the slope you find the line passes through (-11,1). This means x must be -11 when y is 1.

The slope of a line is 4/3

This pair of points is on the line:

(-1, 7) & (14,y)

Find the value of y.

You can now finish Hwk #24: Sec 6-1

Pages 286-288

Problems 1-4, 8, 9, 20-25, 49, 61, 62

Due tomorrow