

Lesson 2.4: Rate of Change (slope)

$$\text{Rate of Change} = \frac{\text{change in } y\text{-values}}{\text{change in } x\text{-values}}$$

* rate of change (slope) is always written in the form of a ratio (fraction)

examples: $\frac{2}{3}$ $\frac{4}{1}$ → unit rate
-denominator is one

* Always double check if your change should be written as a negative (withdraw, less than, difference, decreasing) OR a positive (add, increasing, more than, deposit)

Example:

Rate of change from a table (t-chart)

X	Y
-2	1
+2 < 0	5 > +4
+2 < 2	9 > +4
+2 < 4	13 > +4
+2 < 6	17 > +4
+2 < 8	21 > +4

$$\text{rate of change} = \frac{\text{change in } y}{\text{change in } x}$$

$$\text{ROC} = \frac{4}{2}$$

ROC = 2
(operation)

$$y = 2x + 5$$

- operation
- rate of change

start value

$$\text{ROC} = \frac{-6}{2}$$

$$\text{ROC} = -3$$

X	Y
-1	6
+2 < 1	0 > -6
+3 < 4	-9 > -9
+2 < 6	-15 > -6
+1 < 7	-18 > -3
10	-27

$$y = -3x + 3$$

ROC SV

$$\text{ROC} = \frac{-9}{3} = -3$$

Step 1: find the change
in y-values

Step 2: find the change
in x-values

Step 3: write as a ratio
in the formula for
rate of change.

$$\frac{\text{y-values}}{\text{x-values}}$$

George collected 18 bugs
in 9 days.

independent = days (x-axis)
dependent = bugs (y-axis)

$$\text{ROC} = \frac{18}{9}$$

$$\text{ROC} = \frac{2 \text{ bugs}}{1 \text{ day}}$$