Average Rate of Change: Basically slope.
over an interval of x values. $[a, b]$

$$ARoC = \frac{y_2 - y_1}{x_2 - x_1} = \boxed{\frac{f(a) - f(b)}{a - b}}$$

Using a Table

Ex. 1: Find the average rate of change on the interval $[0,1]$.

x	f(x)
-2	15
-1	12
0	-7
1	-2
2	21
3	20
4	-1

$$\frac{f(0) - f(1)}{0 - 1} = \frac{-7 + 2}{0 - 1}$$

$$\frac{-5}{-1} = \boxed{5}$$

Using a Table

Ex. 2: Find the average rate of change on the interval $[-2, 0]$.
$\underset{a}{-2}, \underset{b}{0}$

x	$f(x)$
-2	15
-1	12
0	-7
1	-2
2	21
3	20
4	-1

$$\frac{f(-2) - f(0)}{-2 - 0} = \frac{15 + 7}{-2 - 0}$$

$$\frac{22}{-2} = \boxed{-11}$$

Ex. 3: Find the average rate of change on the interval $[-2, 3]$.

$$\frac{f(-2) - f(3)}{-2 - 3} = \frac{15 - 20}{-5} = \frac{-5}{-5} = \boxed{1}$$
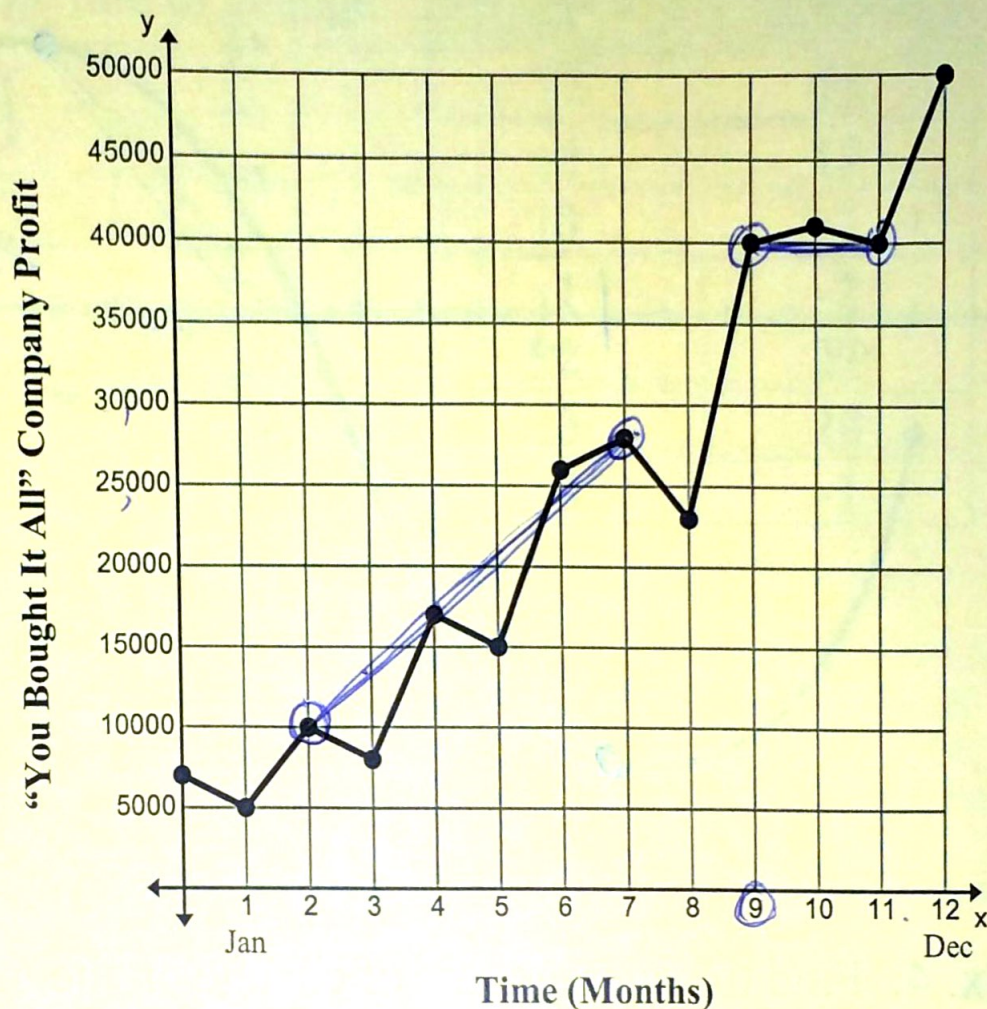
Using a graph
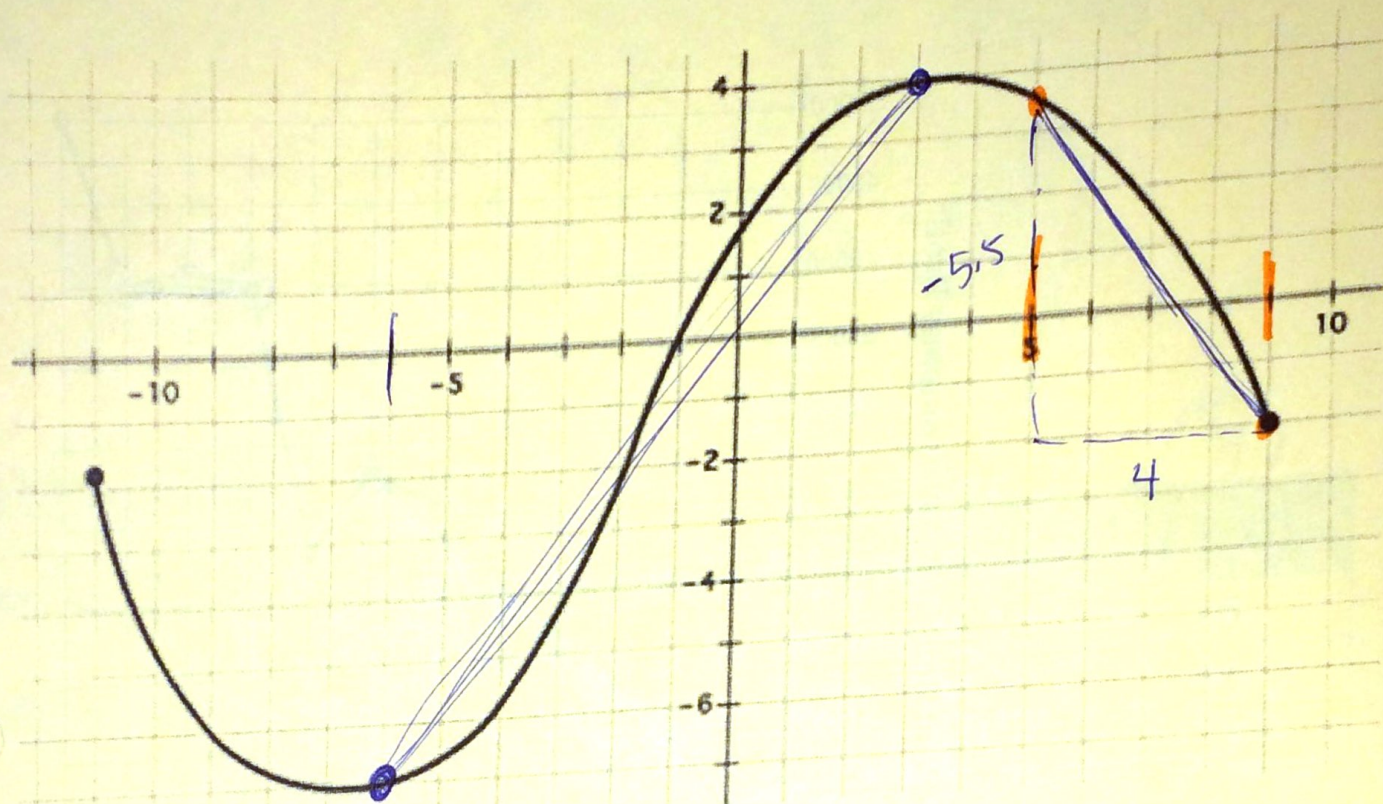
Ex. 4: Find the average rate of change on the interval $[5, 9]$.

$$\frac{f(5) - f(9)}{5-9} = \frac{3.5 - -2}{5-9} = \frac{5.5}{-4} = \boxed{-1.375}$$

Ex. 5: Find the average rate of change on the interval $[-6, 3]$.

$$\frac{f(-6) - f(3)}{-6-3} = \frac{-7-4}{-9} = \frac{-11}{-9} = \frac{11}{9} = \boxed{1.2}$$

The graph below shows the profit for a company for the year.

Time (Months)

Ex. 6: What is the average change in profit from February to July?

$$\frac{f(2) - f(7)}{2 - 7} = \frac{10,000 - 27,500}{-5} = \frac{-17,500}{-5} = \$3,500 \text{ growth in revenue per month}$$

Ex. 7: What is the average change in profit from September to November?

Ex. 8: What is the average change in profit from January to December?