Warm-Up:

Evaluate each function rule for $x = -5$.

1. $y = x - 7$
2. $y = 7 - x$
3. $y = 2x + 5$
4. $y = -\frac{2}{5}x + 3$

$y = -5 - 7$

$y = -12$ ✓

$y = 7 - x$

$y = 7 - (-5)$

$y = 7 + 5$

$y = 12$

$y = 2(-5) + 5$

$y = -10 + 5$

$y = -5$ ✓

$y = -\frac{2}{5}x + 3$

$-\frac{2}{5}\left(\frac{-5}{1}\right) + 3$

$y = \frac{10}{5} + 3$

$y = 2 + 3 = 5$ ✓

6.1 Rate of Change and Slope (Day 1)

$m = \text{Slope} = \frac{\text{rise}}{\text{run}}$ ↑+ ↓− ←− −→+

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

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

has units (mpg)(hours per wk)

Ex 1: Find the rate of change using a table

independent (x) # of days

dependent (y) rental charge

$ROC = \frac{\text{change in } y}{\text{change in } x}$ $\frac{15}{1}$ 15

What does it mean?

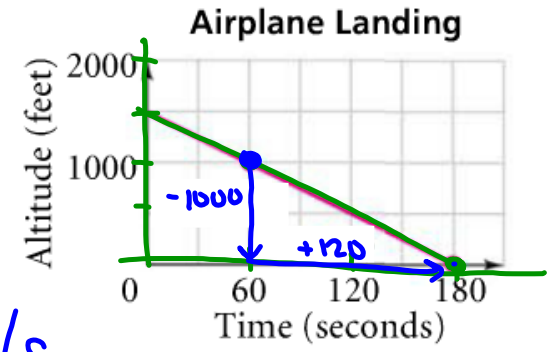
$15 per day

Ex 2: Find the rate of change using a graph

$ROC = \frac{\text{dep. var (y)}}{\text{indep. var (x)}}$ $\frac{ft}{s}$

$= \frac{-1000\ ft}{+120\ s}$

$\approx -8.\overline{3}\ ft/s$



What does it mean?

(x_1, y_1) (x_2, y_2)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Ex 4 Find the slope of the line through $A(-2, 1)$ and $B(6, 7)$

(x_1, y_1) (x_2, y_2)

label your points →

Plug in $m = \frac{7-1}{6+2} = \frac{6}{8} = \frac{3}{4}$