MATH 020 Support 4: Graphs of Linear Equations

<u>Linear Equation in Two Variables</u>

$Ax + By = C$ Standard Form of a Line
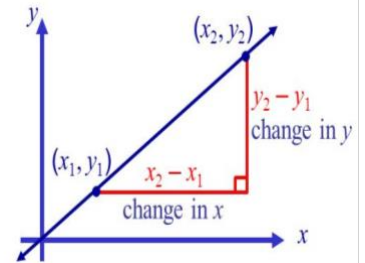
$y = mx + b$ Slope-Intercept Form

<u>The Slope of a Line</u>

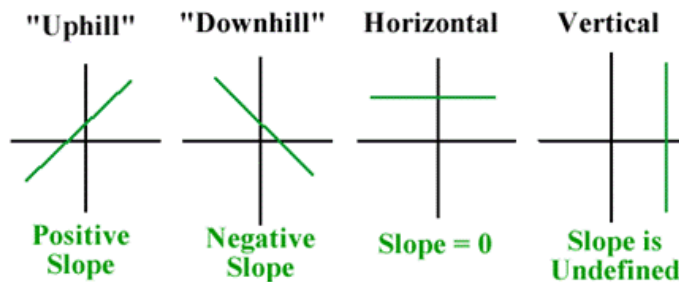$$slope = \frac{vertical\ change}{horizontal\ change} = \frac{rise}{run}$$

The <u>slope</u> of a line passing through two points (x_1, y_1) and (x_2, y_2) is

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

- The slope of a <u>horizontal</u> line: m = 0

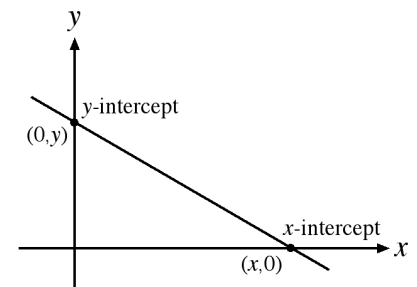- The slope of a <u>vertical</u> line: m = undefined

Intercepts

The <u>x-intercept</u> is the point where the graph intersects the x-axis. The <u>y-intercept</u> is the point where the graph intersects the y-axis.

To find the x-intercept, let $y = 0$ and solve for x.

To find the y-intercept, let $x = 0$ and solve for y.

Problems

Find the slope and y-intercept of the line and then graph.

1. $y = 2x - 8$

2. $y = \frac{1}{4}x - 2$

3. $y = 8x - 9$

4. $x = -3$

5. $y = 7$

Graph the equation by first finding the x and y intercepts.

6. $3x + 4y = 12$

7. $3x - 2y = 6$

8. $y = 1.2x - 3.5$