

Carnegie Learning Algebra 1

Study Guide –

- **Graphs and Linear Equations**

You can determine the *intercepts* and the *rate of change (slope)* for a linear equation from the numbers in the equation.

Examples:

$$Y = 5X + 2$$

Y-intercept is (0, 2)

When X increases 1, Y **increases 5** (because of the **5** multiplied by X). The *slope is 5*.

X-intercept is $(-\frac{2}{5}, 0)$ (The opposite of $\frac{2}{5}$)

$$f(X) = -2X - 4$$

Y-intercept is (0, -4)

When X increases 1, Y **decreases 2** (because of the **-2** multiplied by X). The *slope is -2*.

X-intercept is $(-2, 0)$ (The opposite of $\frac{-4}{-2}$)

$$Y = f(X) = aX + b$$

Y-intercept is (0, b)

When X increases 1, Y **increases a** (because of the **a** multiplied by X). The *slope is a*.

X-intercept is $(-\frac{b}{a}, 0)$ (The opposite of $\frac{b}{a}$)