Name: Date:

Advanced Algebra

1-2 Writing Linear Equations

TWO FORMS OF A LINAER EQUATION

 **Slope-Intercept Form Point- Slope Form**

 $y=mx+b$ $y-y\_{1}=m(x-x\_{1})$

**Example 1:** Find the equation of a line that passes through the points $\left(5,-1\right) and (-5,5)$.

**Example 2:** Find the equation of the line that passes through the point $\left(-3,6\right)$ and has a slope of -2.

**Practice:**

1) Find the equation of the line that has as slope of $-\frac{1}{2}$ and passes through the point (-2, 6).

2) Find the equation of a line that passes through the points $\left(-3, 3\right) and (-5, 11)$.

MORE ON PARALLEL AND PERPENDICULAR

\*\*Two distinct non-vertical lines are **parallel** if and only if their slopes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

That is, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\*\*Two non-vertical lines are **perpendicular** if and only if their slopes are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each other.

That is, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

**Example 3:** Find an equation of a line that passes through the point (2, -1) and is:

a. parallel to $2x-3y=5$ b. perpendicular to $2x-3y=5$

**Example 4:** Find an equation of a line that passes through the point (3, 5) and is:

a. parallel to $4x+2y=0$ b. perpendicular to $4x+2y=0$

**Practice:**

1) Find the equation of a line that passes through the point (-3, 2) and is parallel to the line $x+y=7$

2) Find an equation of the line that passes through the point $(4, 0)$ and has a slope of $-\frac{1}{3}$.

3) Find the equation of a line that passes through the point $(-6,4)$ and is perpendicular to the line $3x+4y=7$.

4) Determine if the lines L1 and L2 passing through the pair of points below are parallel, perpendicular, or neither.

$$L\_{1:}\left(0,-1\right), (5, 9)$$

$$L\_{2}:\left(0, 3\right), \left(4, 1\right)$$

5) Write an equation of a line that passes through the point (2, 5) and is parallel to $x=4$.