

# Lesson 10: Graphing Lines

## Linear Equations, Ordered Pairs

### Standard Form of a Linear Equation in Two Variables

The **standard form** of the equation of a line is written as:  $Ax + By = C$

where  $A$ ,  $B$ , and  $C$  are real numbers,  $A \geq 0$ , and both  $A$  and  $B$  do not equal zero.

$$4x - 2y = 8 \qquad y = \frac{1}{2}x - 4 \qquad x = 4 \qquad -9k + 3j = 5$$

### Ordered Pairs

A solution to a linear equation in two variables is written as an **ordered pair**,  $(x, y)$ .

Example: A solution to  $4x - 2y = 8$  would be  $(3, 2)$ . This means that when  $x = 3$  and  $y = 2$ ,  $4x - 2y = 8$ .

Is  $(6, -1)$  a solution for  $y = \frac{1}{2}x - 4$ ?

Is  $(8, 1)$  a solution for  $y = \frac{1}{2}x - 4$ ?

Complete the ordered pair  $(10, \quad)$  for  $y = \frac{1}{2}x - 4$ .

Sometimes, it is helpful to complete a table of ordered pairs.

$4x - 2y = 8$	X	Y	$y = \frac{1}{2}x - 4$	X	Y
	3	2		10	
	2				0
	1			6	
	0				-2