

## Study Guide

**Graphing Linear Equations**

An equation whose graph is a straight line is called a **linear equation**.

**Definition of Linear Equation**

A **linear equation** is an equation that can be written in the form  $Ax + By = C$ , where  $A$ ,  $B$ , and  $C$  are any numbers and  $A$  and  $B$  are not both 0.

**Drawing the Graph of a Linear Equation**

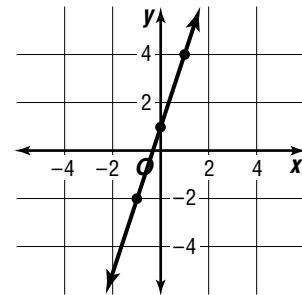
1. Solve the equation for one variable.
2. Set up a table of values for the variables.
3. Graph the ordered pairs and connect them with a line.

**Example:** Draw the graph of  $y - 3x = 1$ .

$$y - 3x = 1$$

$$y = 3x + 1$$

$x$	$3x + 1$	$y$	$(x, y)$
-1	$3(-1) + 1$	-2	$(-1, -2)$
0	$3(0) + 1$	1	$(0, 1)$
1	$3(1) + 1$	4	$(1, 4)$



**Determine whether each equation is a linear equation. If an equation is linear, rewrite it in the form  $Ax + By = C$ .**

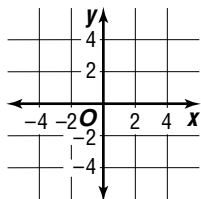
1.  $4x - 2y = -1$

2.  $\frac{x}{3} = 5$

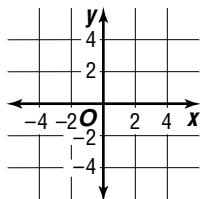
3.  $y = x^2 + 7$

**Graph each equation.**

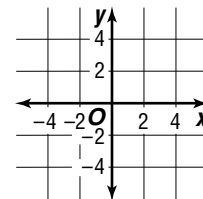
4.  $3x + 2y = 6$



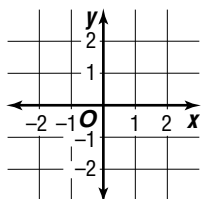
5.  $m + 2n = 4$



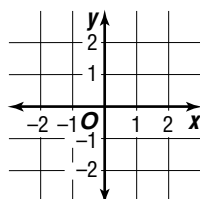
6.  $3p + q = -2$



7.  $3a - 6b = -3$



8.  $-2x + y = -2$



9.  $\frac{1}{4}x + \frac{3}{4}y = 6$

