

## Writing Linear Equations in the Form $y = mx + b$

If we want to use the slope and  $y$ -intercept to graph an equation like  $4x + 3y = 6$ , we first have to **solve the equation for  $y$** . That means to find an equivalent equation in the form  $y = mx + b$ , where  $m$  is the slope and  $b$  is the  $y$ -intercept. To do that we use the Addition and Division Principles to get the  $y$ -term by itself on one side of the equation.

$$4x + 3y = 6$$

$$3y = -4x + 6$$

$$\frac{3y}{3} = \frac{-4x + 6}{3}$$

$$y = -\frac{4}{3}x + 2$$

Now we can see that the slope is  $-\frac{4}{3}$  and the  $y$ -intercept is 2.

Solve each equation for  $y$ . Write the slope ( $m$ ) and  $y$ -intercept ( $b$ ) of the graph.

$$5x + 2y = 12$$

$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$6x + 2y = 10$$

$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$4y - 3x = 20$$

$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$x + y = 8$$

$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$x - 2y = 6$$

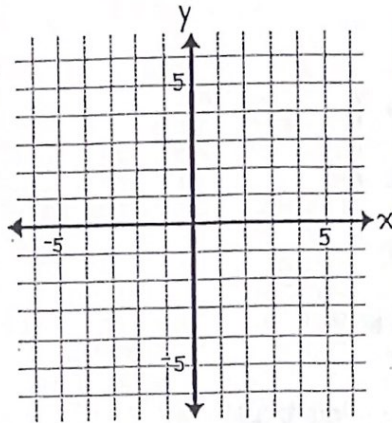
$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$x + 3y = 15$$

$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

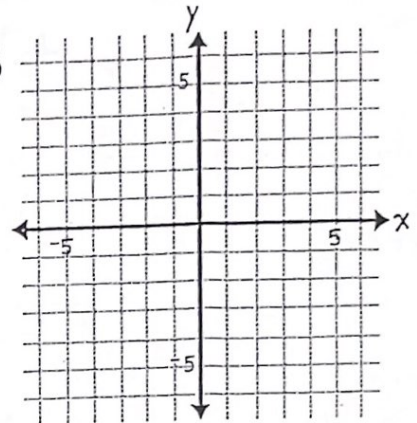
Solve each equation for  $y$ . Write the slope and  $y$ -intercept. Then use these to graph the equation.

$$2x + 3y = 12$$



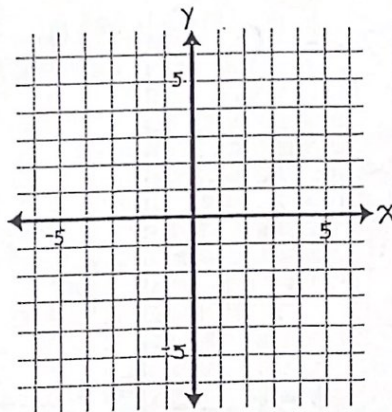
$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$5x - 2y = 8$$



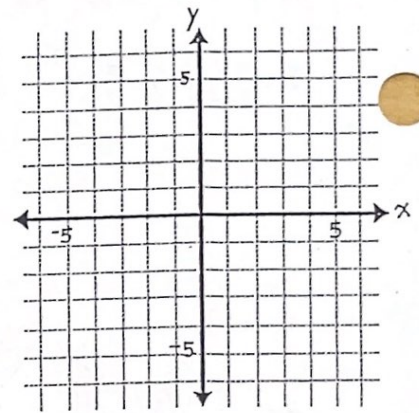
$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$x + y = 3$$



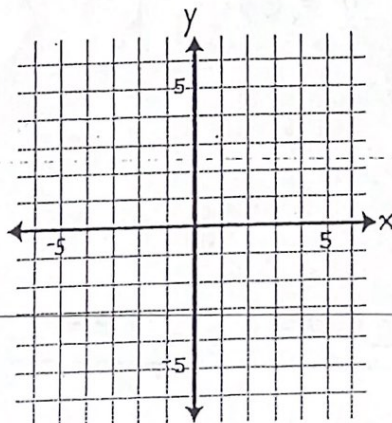
$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$3x - y = 2$$



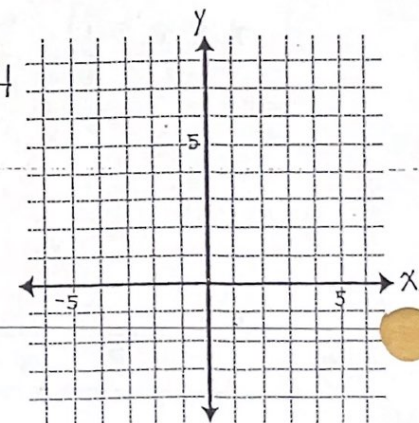
$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$5x - 10y = 0$$



$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$

$$x - 4y = -24$$



$$m = \underline{\hspace{2cm}} \quad b = \underline{\hspace{2cm}}$$