

Standard Form of a Linear Equation
Worksheet

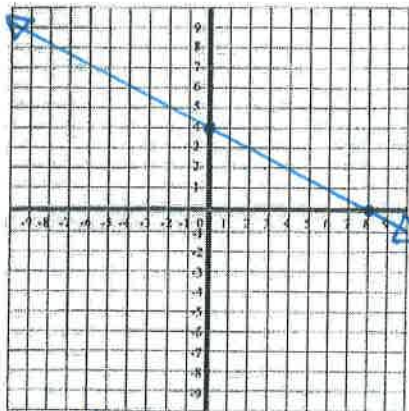
Name Key
Date _____ Block _____

Find the x- and y-intercepts of each equation and then graph the line.

1) $x + 2y = 8$

x-int: $x + 2(0) = 8$
 $(8, 0)$ $x + 0 = 8$
 $x = 8$

y-int: $0 + 2y = 8$
 $(0, 4)$ $\frac{2y}{2} = \frac{8}{2}$
 $y = 4$

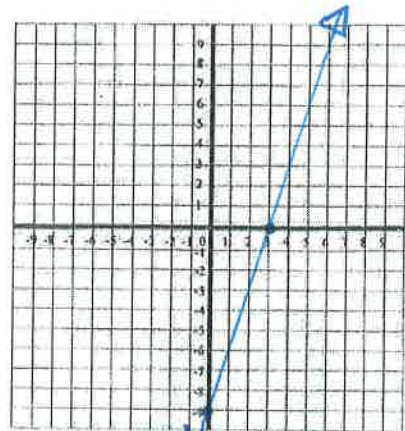


x-int = (8, 0) y-int = (0, 4)

2) $3x - y = 9$

x-int: $3x - 0 = 9$
 $(3, 0)$ $\frac{3x}{3} = \frac{9}{3}$
 $x = 3$

y-int: $3(0) - y = 9$
 $(0, -9)$ $0 - y = 9$
 $-y = 9$
 $y = -9$



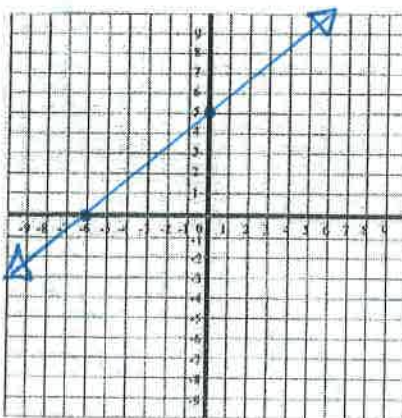
x-int = (3, 0) y-int = (0, -9)

3) $-5x + 6y = 30$

x-int: $-5x + 6(0) = 30$
 $(-6, 0)$ $-5x + 0 = 30$
 $\frac{-5x}{-5} = \frac{30}{-5}$

y-int: $-5(0) + 6y = 30$
 $(0, 5)$ $0 + 6y = 30$
 $\frac{6y}{6} = \frac{30}{6}$

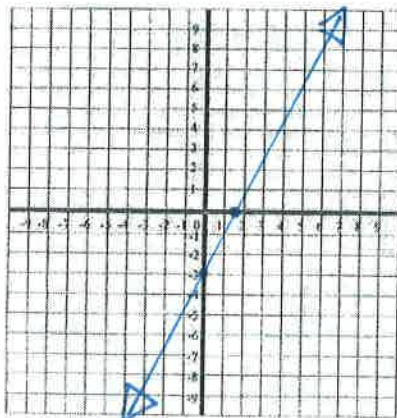
$y = 5$ x-int = (-6, 0) y-int = (0, 5)



4) $-6x + 3y = -9$

x-int: $-6x + 3(0) = -9$
 $(\frac{3}{2}, 0)$ $-6x + 0 = -9$
 $\frac{-6x}{-6} = \frac{-9}{-6}$
 $x = \frac{3}{2}$
 (or 1.5)

y-int: $-6(0) + 3y = -9$
 $(0, -3)$ $0 + 3y = -9$
 $\frac{3y}{3} = \frac{-9}{3}$
 $y = -3$

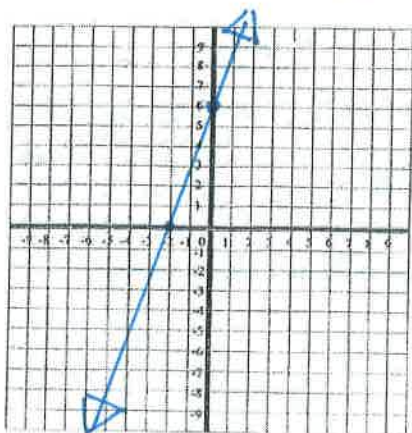


x-int = (1.5, 0) y-int = (0, -3)

5) $-3x + y = 6$

x-int: $-3x + 0 = 6$
 $(-2, 0)$ $\frac{-3x}{-3} = \frac{6}{-3}$
 $x = -2$

y-int: $-3(0) + y = 6$
 $(0, 6)$ $0 + y = 6$
 $y = 6$

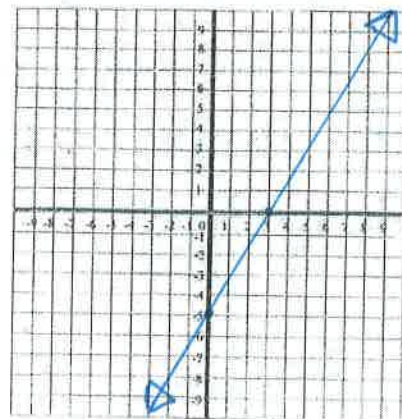


x-int = (-2, 0) y-int = (0, 6)

6) $5x - 3y = 15$

x-int: $5x - 3(0) = 15$
 $(3, 0)$ $5x - 3(0) = 15$
 $5x - 0 = 15$
 $\frac{5x}{5} = \frac{15}{5}$
 $x = 3$

y-int: $5(0) - 3y = 15$
 $(0, -5)$ $5(0) - 3y = 15$
 $-3y = 15$
 $\frac{-3y}{-3} = \frac{15}{-3}$
 $y = -5$



x-int = (3, 0) y-int = (0, -5)

Write each equation in standard form using integers.

$$\begin{array}{r} 7) y = 3x + 1 \\ -3x \quad -3x \\ \hline \end{array}$$

$$-3x + y = 1$$

OR

$$3x - y = -1$$

$$\begin{array}{r} 8) y = 4x - 7 \\ -4x \quad -4x \\ \hline \end{array}$$

$$-4x + y = -7$$

OR

$$4x - y = 7$$

$$9) (y) = \left(\frac{1}{2}x - 3\right)^2$$

$$\begin{array}{r} 2y = x - 6 \\ -x \quad -x \\ \hline \end{array}$$

$$-x + 2y = -6$$

OR

$$x - 2y = 6$$

$$10) y = \frac{2}{3}x + 5$$

$$\begin{array}{r} -\frac{2}{3}x \quad -\frac{2}{3}x \\ \hline \end{array}$$

$$3 \cdot \left(-\frac{2}{3}x + y\right) = (5) \cdot 3$$

$$-2x + 3y = 15$$

OR

$$2x - 3y = -15$$

$$13) y = \frac{7}{2}x + \frac{1}{4}$$

$$\begin{array}{r} -\frac{7}{2}x \quad -\frac{7}{2}x \\ \hline \end{array}$$

$$4 \cdot \left(-\frac{7}{2}x + y\right) = \left(\frac{1}{4}\right) \cdot 4$$

$$-14x + 4y = 1$$

OR

$$14x - 4y = -1$$

$$11) y = -\frac{3}{4}x - 4$$

$$\begin{array}{r} +\frac{3}{4}x \quad +\frac{3}{4}x \\ \hline \end{array}$$

$$4 \cdot \left(\frac{3}{4}x + y\right) = (-4) \cdot 4$$

$$3x + 4y = -16$$

OR

$$-3x - 4y = 16$$

$$14) y = -\frac{2}{5}x + \frac{1}{10}$$

$$\begin{array}{r} +\frac{2}{5}x \quad +\frac{2}{5}x \\ \hline \end{array}$$

$$10 \cdot \left(\frac{2}{5}x + y\right) = \left(\frac{1}{10}\right) \cdot 10$$

$$4x + 10y = 1$$

OR

$$-4x - 10y = -1$$

$$12) y = -\frac{4}{5}x - 7$$

$$\begin{array}{r} +\frac{4}{5}x \quad +\frac{4}{5}x \\ \hline \end{array}$$

$$5 \cdot \left(\frac{4}{5}x + y\right) = (-7) \cdot 5$$

$$4x + 5y = -35$$

OR

$$-4x - 5y = 35$$

$$15) y = -3x$$

$$\begin{array}{r} +3x \quad +3x \\ \hline \end{array}$$

$$3x + y = 0$$

16) Write an equation of a line (in standard form) that has the same slope as the line

$$3x - 5y = 7$$

3. Put slope & y-intercept into equation.

$$b = 4$$

Put into slope-intercept form:

$$\begin{array}{r} 2y - 9x = 8 \\ +9x \quad +9x \\ \hline \end{array}$$

$$\frac{2y}{2} = \frac{9x+8}{2}$$

$$y = \frac{9}{2}x + 4$$

y-intercept

$$b = (0, 4)$$

1. Put into slope-intercept form:

$$\begin{array}{r} 3x - 5y = 7 \\ -3x \quad -3x \\ \hline \end{array}$$

$$\frac{-5y}{-5} = \frac{-3x+7}{-5}$$

$$y = \frac{3}{5}x - \frac{7}{5}$$

$$m = \frac{3}{5}$$

$$\begin{array}{r} -\frac{3}{5}x \quad -\frac{3}{5}x \\ \hline \end{array}$$

$$5 \cdot \left(-\frac{3}{5}x + y\right) = (4) \cdot 5$$

$$-3x + 5y = 20$$

OR

$$3x - 5y = -20$$

Convert to standard form