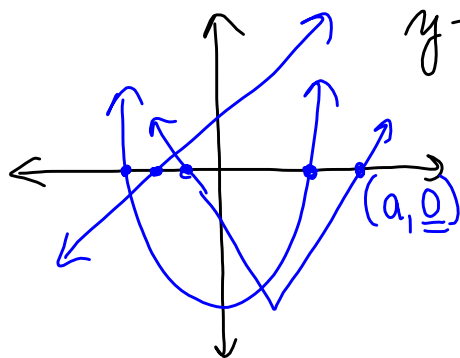


Sec. 5.5 Standard Form

$$Ax + By = C$$

$A, B, C \rightarrow$ integers.

x -intercept: where a graph crosses the x -axis; the



y -coordinate is 0. $(a, \underline{0})$

\downarrow
 x -intercept

$(\underline{0}, b)$

\downarrow
 y -intercept

To find intercepts:

x - plug in 0 for y $(a, \underline{0})$

y - plug in 0 for x $(\underline{0}, b)$

Problem 1: what are the x - and y -intercepts?

a. $2x + 6y = 18$

$x: (a, 0) \quad 2x + 6 \cdot 0 = 18$

$$\frac{2x}{2} = \frac{18}{2}$$

$$\boxed{x = 9} \rightarrow (9, 0)$$

$y: (0, b) \quad 2 \cdot 0 + 6y = 18$

$$\frac{6y}{6} = \frac{18}{6}$$

$$\boxed{y = 3} \rightarrow (0, 3)$$

$$\begin{array}{c|c} 9 & 0 \\ \hline 0 & 3 \end{array}$$

$$b. \quad 3x + 8y = 12$$

$$x: \quad 3x + 8 \cdot 0 = 12$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$\boxed{x = 4}$$

$$(4, 0)$$

$$y: \quad 3 \cdot 0 + 8y = 12$$

$$\frac{8y}{8} = \frac{12}{8}$$

$$\boxed{y = \frac{3}{2}}$$

$$(0, \frac{3}{2})$$

Problem 2: What is the graph of
 $4x - 3y = 12$?

$$4x - 3 \cdot 0 = 12$$

$$\frac{4x}{4} = \frac{12}{4}$$

$$x = 3$$

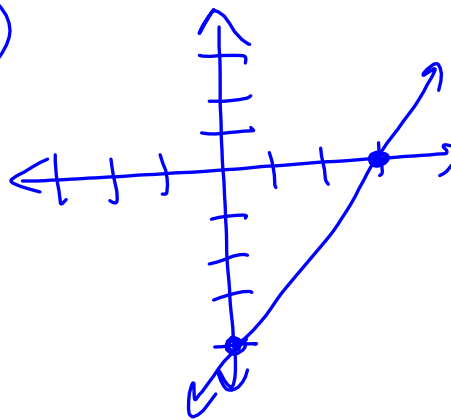
$$(3, 0)$$

$$4 \cdot 0 - 3y = 12$$

$$\frac{-3y}{-3} = \frac{12}{-3}$$

$$y = -4$$

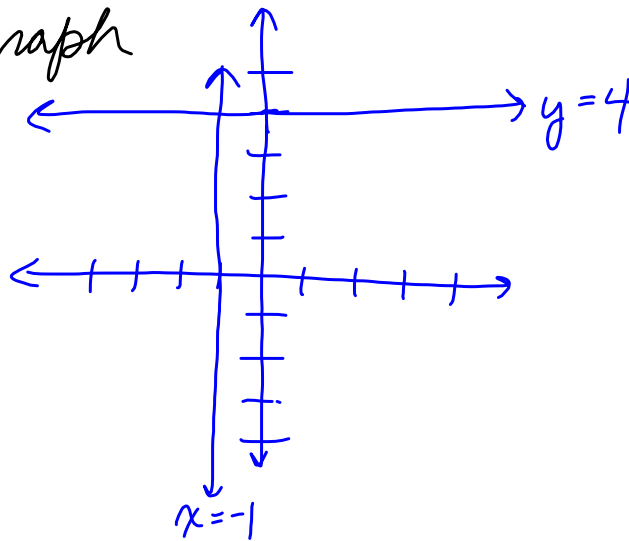
$$(0, -4)$$



Problem 3: Graph

a. $x = -1$

b. $y = 4$



Problem 4: What is $y = -\frac{3}{5}x + 4$ in standard form using integers?

$$y = -\frac{3}{5}x + 4$$

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

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

$$\begin{array}{r} 5y = -3x + 20 \\ +3x \quad +3x \\ \hline \end{array}$$

$$3x + 5y = 20$$

b. $3(y - 2) = -\frac{1}{3}(x + 6) \rightarrow 3y - 6 = -1(x + 6)$

$$\begin{array}{r} y - 2 = -\frac{1}{3}x - 2 \\ +2 \qquad \qquad +2 \\ \hline \end{array}$$

$$3 \cdot y = -\frac{1}{3}x \cdot 3$$

$$\begin{array}{r} 3y = -x \\ +x \qquad +x \\ \hline \end{array}$$

$$x + 3y = 0$$

$$\begin{array}{r} 3y - 6 = -x - 6 \\ +6 \qquad +6 \\ \hline \end{array}$$

$$\begin{array}{r} 3y = -x \\ +x \qquad +x \\ \hline \end{array}$$

$$x + 3y = 0$$

Problem 5:

A festival sells ride tickets for 50¢ each and game tickets for 20¢ each. You have \$5 to spend on tickets at the festival. Write and graph an equation that describes the items you can purchase. What are three combinations of game and ride tickets you can purchase?

$$0.50x + 0.20y = 5$$

$$50x + 20y = 500$$

$$5x + 2y = 50$$

$$5x + 2 \cdot 0 = 50$$

$$\frac{5x}{5} = \frac{50}{5}$$

$$x = 10$$

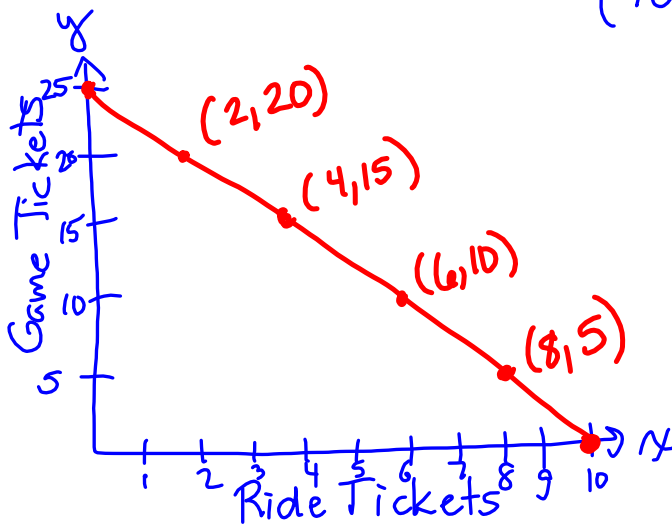
$$(10, 0)$$

$$5 \cdot 0 + 2y = 50$$

$$\frac{2y}{2} = \frac{50}{2}$$

$$y = 25$$

$$(0, 25)$$



$$m = \frac{-25}{10} = -\frac{5}{2}$$

2 Ride, 20 game

4 Ride, 15 game

6 Ride, 10 game

8 Ride, 5 game