Bell Ringer

Thursday 9/12

1. Graph the function rule $f(x) = \frac{1}{2}x - 3$?

$$\begin{array}{c|c} x & y \\ \hline 0 & -3 \\ 1 & -2.5 \\ 2 & -2 \end{array}$$
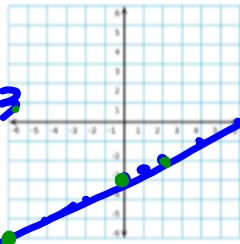
2. Evaluate: f(0) =   f(2) =   f(-6) = $\frac{1}{2}(-6) - 3$
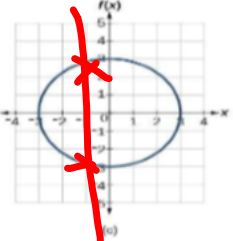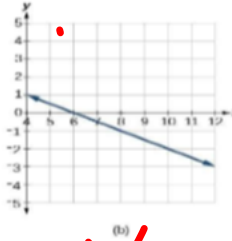
   -3 -2 -6
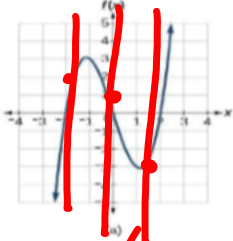
3. For w(x) = -2x + 7, find the value of x for which w(x) = -3

   $-3 = -2x + 7$
   $-7 \quad -7$
   $-10 = -2x$
   $\boxed{x = 5} \quad (5, -3)$

4. Use the vertical line test to determine whether each graph represents a function or not.

Essential Question

How can you describe the graph of the equation $Ax + By = C$?

Standard Form: $Ax + By = C$

Identify A, B, and C...

$3x + 7y = 21$

A = 3

B = 7

C = 21

$9x - 3y = 18$

A = 9

B = -3

C = 18

$-x + y = 5$

A = -1

B = 1

C = 5

⟳ Core Concept

Using Intercepts to Graph Equations

The **x-intercept** of a graph is the x-coordinate of a point where the graph crosses the x-axis. It occurs when $y = 0$.

The **y-intercept** of a graph is the y-coordinate of a point where the graph crosses the y-axis. It occurs when $x = 0$.

y-intercept = b

(0, b)

x-intercept = a

O   (a, 0)   x

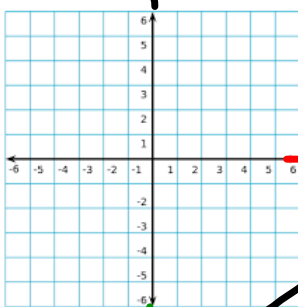To graph the linear equation $Ax + By = C$, find the intercepts and draw the line that passes through the two intercepts.

- To find the x-intercept, let $y = 0$ and solve for x.

- To find the y-intercept, let $x = 0$ and solve for y.
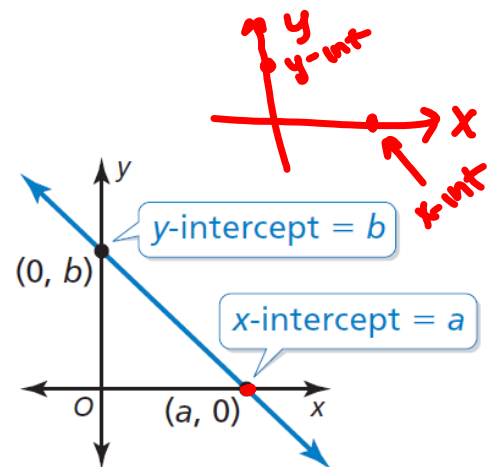
y-int

x-int

Find the x- and y-intercepts of each graph

$- 6y = 60$

$\dfrac{}{-6} \quad \dfrac{}{-6}$

x	y
12	0
0	-10

(12,0)
(0,-10)

12

$+ 8y = 12$

$\dfrac{}{8} \quad \dfrac{}{8}$
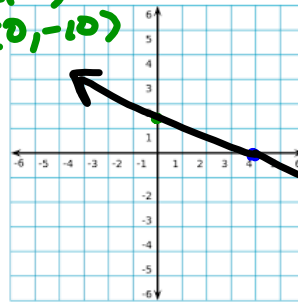
x	y
4	0
0	1.5

Find the x- and y-intercepts of each graph

$$\cancel{x} + \frac{9y}{9} = \frac{-9}{9}$$
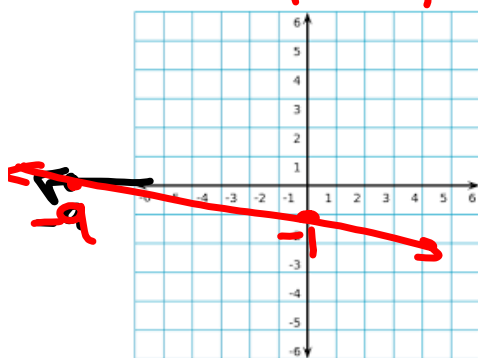
x	y
-9	0
0	-1

Find the x- and y-intercepts of each graph

$$10x - 4y = 20$$
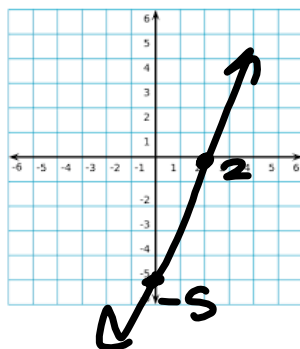
x	y
2	0
0	-5

Find the x and y intercepts, then graph
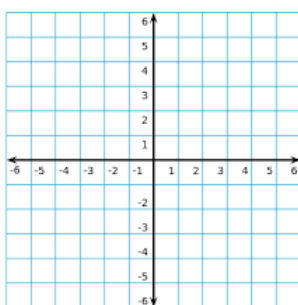
$3x + 4y = 12$
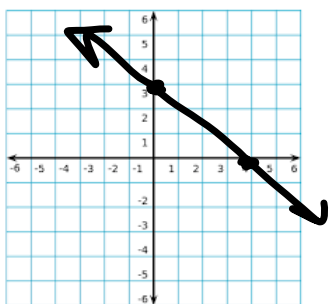
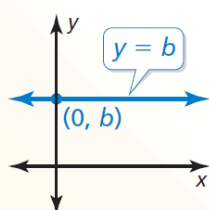| x	y
4	0
0	3

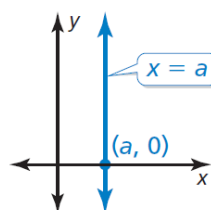# Find the x and y intercepts, then graph

$$2x + 5y = 20$$

Core Concept

Horizontal and Vertical Lines

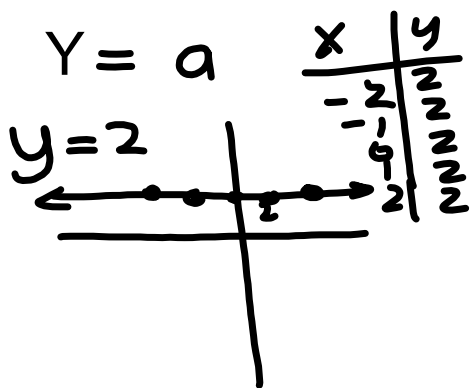The graph of $y = b$ is a horizontal line. The line passes through the point $(0, b)$.

The graph of $x = a$ is a vertical line. The line passes through the point $(a, 0)$.

Horizontal   Vertical

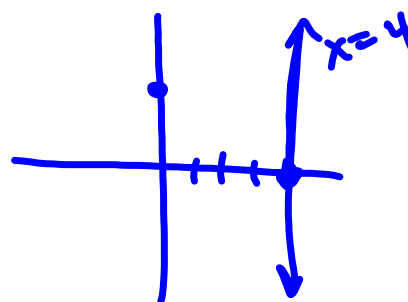O = slope (zero)   Undefined

$Y = a$ | X | y | $X = a$
                 | -2 | 2 |
$y = 2$ | -1 | 2 |
                 | 0 | 2 | x=4
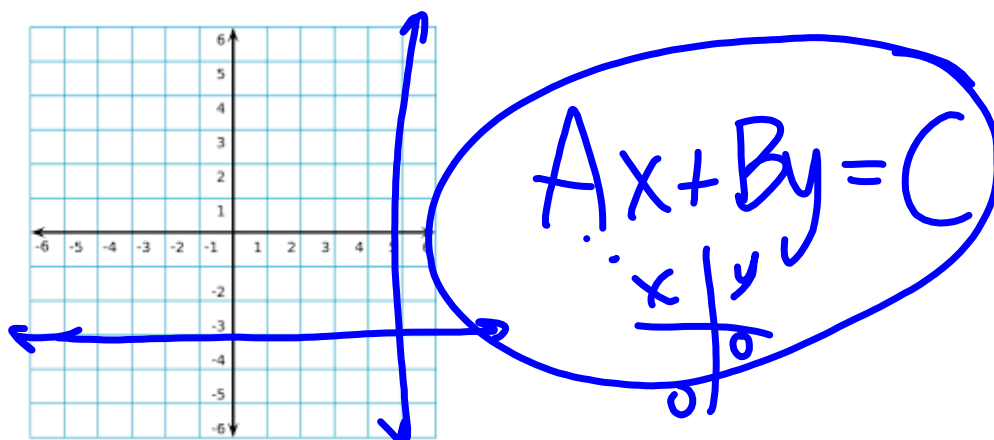 | 1 | 2 |
                 | 2 | 2 |

Graph $y = 4$ and $x = -2$.

# Graph $y = -3$ and $x = 5$

$$Ax + By = C$$
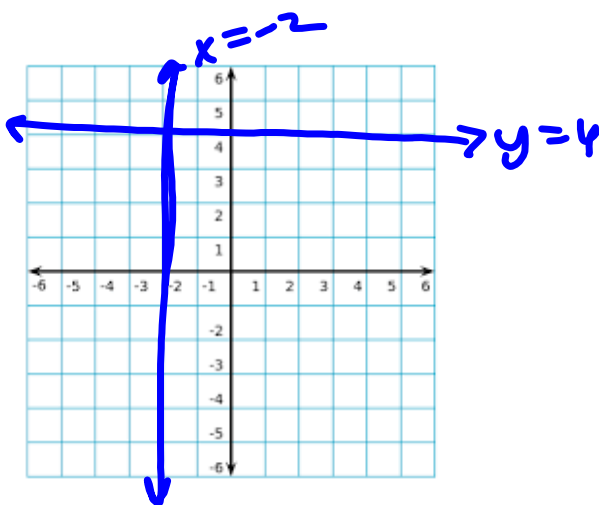
You are planning an awards banquet for your school. You need to rent tables to seat 180 people. There are two table sizes available. Small tables seat 6 people, and large tables seat 10 people. The equation $6x + 10y = 180$ models this situation, where x is the number of small tables and y is the number of large tables.

a. Graph the equation. Interpret the intercepts.

30 small

18 big

X	y
30	0
0	18
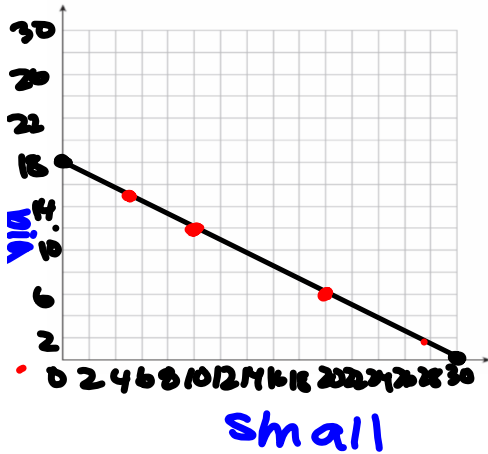
b. Find four possible solutions in the context of the problem.

$$\frac{-18}{30} = \frac{3}{5}$$

7 small
17 big

10 small -3
12 big +5

20 small
6 big

17 small
11 big

Small

3.4 hw pg 133-134 #s 1-2, 3-19 odd,
23, 25, 26, 27, 34