## 4.3: Graph a Line Using $x$ and $y$ intercepts

Goals *Identify $x$ and $y$ intercepts by looking at a graph
*Identify $x$ and $y$ intercepts from an equation
*Graph a line using $x$ and $y$ intercepts
*Interpret meaning of $x$ and $y$ intercepts




## $\underline{x}$-intercept:

$y$-intercept:

Identify the $x$ and $y$ intercepts from the graphs:

$x$-intercept: $\qquad$ $y$-intercept: $\qquad$
$\qquad$
$\qquad$
$\qquad$

## Ex:



Ex:

$x$-intercept: $\qquad$ $y$-intercept: $\qquad$ $\underline{x}$-intercept: $\qquad$ $y$-intercept: $\qquad$

## Graphing a line using $x$ and $y$ intercepts:

1. Find the $x$ - intercept by letting $\qquad$ .

Ex: $2 x+5 y=10$ (since we noticed this is true for all $x$ - intercepts)
2. Solve for $x$. $\qquad$ , 0)
3. Graph the $x$-intercept you just found. Since you know this is the point where the line hits the $\qquad$ , your only options
for graphing are to move $\qquad$ or $\qquad$ .
4. Find the $y$-intercept by letting $\qquad$ in the original equation.
(since we noticed this is true for all $y$-intercepts)
5. Solve for $y$. ( 0 , $\qquad$ )
6. Graph the $y$ - intercept you just found. Since you know this is the point where the line hits the $\qquad$ ,
 your only options are to move $\qquad$ or $\qquad$ .
7. Connect with a ruler.

Find the $x$ and $y$ intercepts of each equation and then graph the equation:

Ex: $3 x+2 y=6$


Ex: $-3 x+5 y=-15$


Ex: $4 x-2 y=10$


Ex: $x+2 y=4$


Ex: You are helping plan an awards banquet for your school and you need to rent tables to seat 180 people.
Tables come in two sizes; small tables seat 4 people and large tables seat 6 people.
Let $x=$ the number of small tables and $y=$ the number of large tables
a) Write an equation to represent the situation
b) Find the $x$ and $y$ intercepts and graph the equation.
c) What do the intercepts mean in terms of the types of tables you are using to seat everyone?
d) Identify four possible combinations of small and large tables that could be used.


Ex: You are making and selling decorative bows. You sell small bows for $\$ 3$ and large bows for $\$ 5$. You want to earn $\$ 60$ in one week. Write an equation to represent the situation and graph. What are 3 possibilities of combinations of small and large bows you could sell?


