

GRAPHING USING INTERCEPTS

<p>X- and Y- Intercepts</p>	<ul style="list-style-type: none"> ➤ The point at which the line intersects the x-axis is called the x-intercept. ➤ The point at which the line intersects the y-axis is called the y-intercept. ➤ Example: Identify the x- and y-intercept of the graph shown to the right. 	
<p>Finding Intercepts Algebraically</p>	<ul style="list-style-type: none"> ➤ To find the x-intercept of an equation: <u>Set $y=0$ & solve for x</u> ➤ To find the y-intercept of an equation: <u>Set $x=0$ & solve for y</u> ➤ Example: Find the x- and y-intercept of the equation $y = 3x + 6$. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><u>x-int</u></p> $\begin{array}{r} 0 = 3x + 6 \\ -6 \quad -6 \\ \hline -6 = 3x \\ \frac{-6}{3} = \frac{3x}{3} \\ -2 = x \end{array}$ </div> <div style="text-align: center;"> <p><u>y-int</u></p> $\begin{array}{l} y = 3(0) + 6 \\ y = 0 + 6 \\ \boxed{y = 6} \end{array}$ </div> </div>	

<h3>Examples</h3>	Directions: Find the x- and y-intercept of each equation.	
	1. $y = -x + 5$	$\begin{array}{l} \text{x-int} \\ 0 = -x + 5 \\ -5 = -x \\ \frac{-5}{-1} = \frac{-x}{-1} \\ 5 = x \end{array}$
	$\begin{array}{l} \text{y-int} \\ y = -0 + 5 \\ y = 5 \end{array}$	x-int: <u>5</u> y-int: <u>5</u>
2. $y = \frac{1}{2}x - 8$	$\begin{array}{l} \text{x-int} \\ 0 = \frac{1}{2}x - 8 \\ +8 \quad +8 \\ \frac{1}{2} \cdot 8 = \frac{1}{2}x - \frac{1}{2} \\ 16 = x \end{array}$	$\begin{array}{l} \text{y-int} \\ y = \frac{1}{2}(0) - 8 \\ y = 0 - 8 \\ y = -8 \end{array}$
3. $y = -\frac{4}{3}x + 2$		x-int: _____ y-int: _____

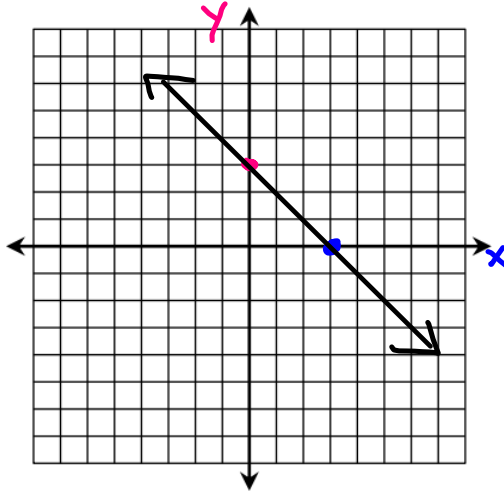
4. $x - y = 2$	$\begin{array}{l} \text{x-int} \\ x - 0 = 2 \\ x = 2 \end{array}$	$\begin{array}{l} \text{y-int} \\ 0 - y = 2 \\ -y = 2 \\ \frac{-y}{-1} = \frac{2}{-1} \\ y = -2 \end{array}$	x-int: <u>2</u> y-int: <u>-2</u>
5. $3x - 2y = 12$			x-int: _____ y-int: _____
6. $8x + 10y = -10$	$\begin{array}{l} \text{x-int} \\ 8x + 10(0) = -10 \\ 8x = -10 \\ \frac{8x}{8} = \frac{-10}{8} \\ x = -\frac{5}{4} \text{ or } -1.25 \end{array}$	$\begin{array}{l} \text{y-int} \\ 8(0) + 10y = -10 \\ \frac{10y}{10} = \frac{-10}{10} \\ y = -1 \end{array}$	x-int: <u>$-\frac{5}{4}$ or -1.25</u> y-int: <u>-1</u>

Directions: Find the x- and y-intercept of each equation. Graph the equation using its intercepts.

7. $x + y = 3$

x-int
 $x + 0 = 3$
 $x = 3$

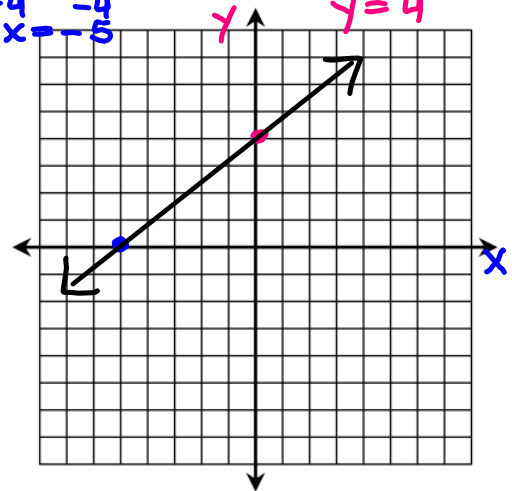
y-int
 $0 + y = 3$
 $y = 3$



8. $-4x + 5y = 20$

x-int
 $-4x + 5(0) = 20$
 $-4x = 20$
 $x = -5$

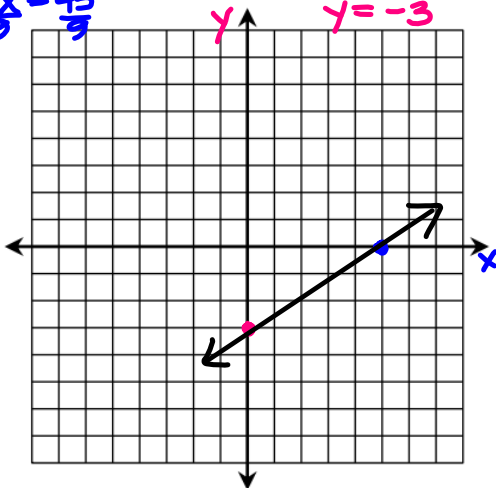
y-int
 $-4(0) + 5y = 20$
 $5y = 20$
 $y = 4$



9. $9x - 15y = 45$

x-int
 $9x - 15(0) = 45$
 $9x = 45$
 $x = 5$

y-int
 $9(0) - 15y = 45$
 $-15y = 45$
 $y = -3$



10. $2x - y = 7$

