

Section 3.2: GRAPHING LINEAR EQUATIONS USING INTERCEPTS

When you are done with your homework you should be able to...

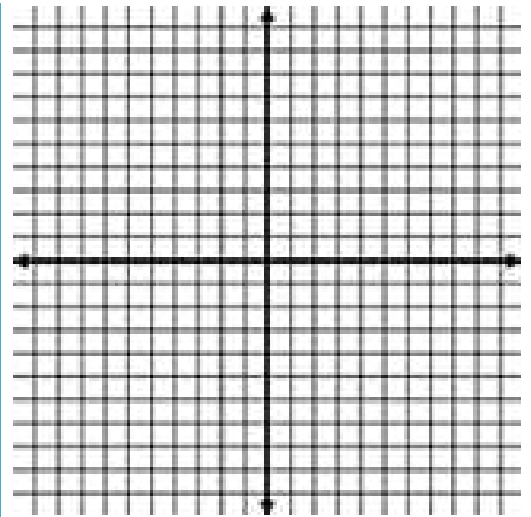
- π Use a graph to identify intercepts
- π Graph a linear equation in two variables using intercepts
- π Graph horizontal or vertical lines

WARM-UP:

Graph the following equations by plotting points.

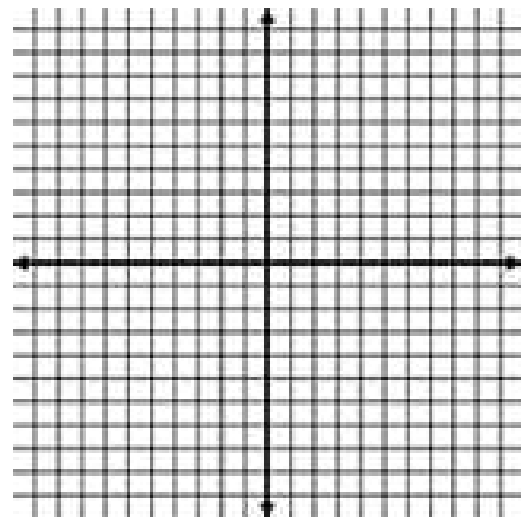
a. $y = -x$

x	$y = -x$	(x, y)



b. $y = \frac{2}{3}x - 7$

x	$y = \frac{2}{3}x - 7$	(x, y)



INTERCEPTS

An _____ of a graph is the _____ of a point where the graph _____ the _____.

The _____ corresponding to an _____ is always _____!!!

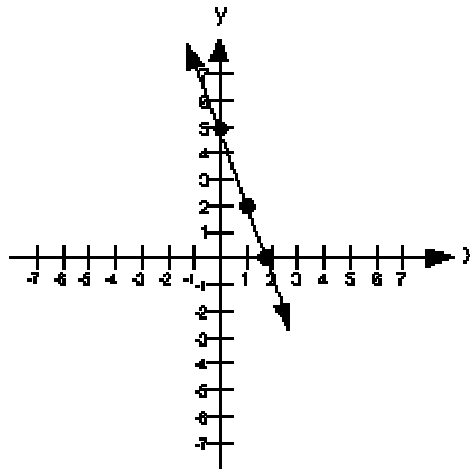
A _____ of a graph is the _____ of a point where the graph _____ the _____.

The _____ corresponding to a _____ is always _____!!!

Example 1: Use the graph to identify the

a. x -intercept

b. y -intercept



GRAPHING USING INTERCEPTS

An equation of the form _____, where _____, _____, and _____ are integers, is called the _____ form of a line.

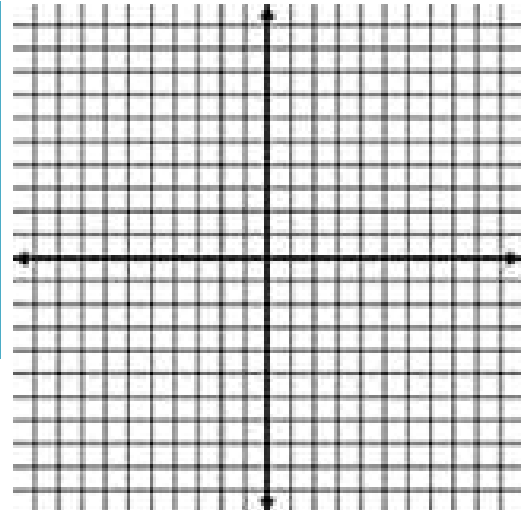
STEPS FOR USING INTERCEPTS TO GRAPH $Ax + By = C$

1. Find the _____. Let _____ and solve for _____.
2. Find the _____. Let _____ and solve for _____.
3. Find a checkpoint, a _____ ordered-pair _____.
4. Graph the equation by drawing a _____ through the _____ points.

Example 2: Graph using intercepts and a checkpoint.

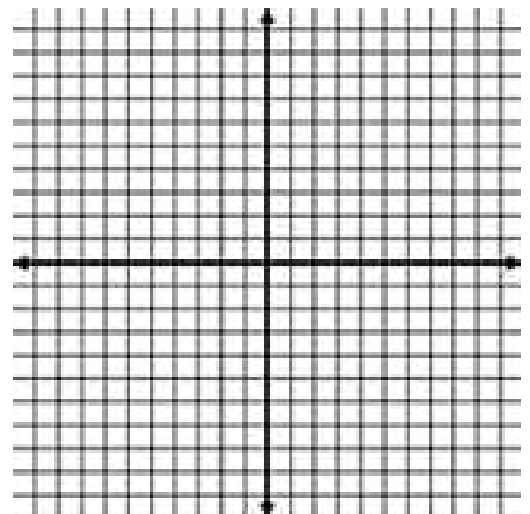
a. $x + y = 6$

x	$x + y = 6$	(x, y)



b. $3x - 2y = -7$

x	$3x - 2y = -7$	(x, y)



EQUATIONS OF HORIZONTAL AND VERTICAL LINES

We know that the graph of any equation of the form _____ is a _____ as long as _____ and _____ are not both _____. What happens if _____ or _____, but not both, is zero?

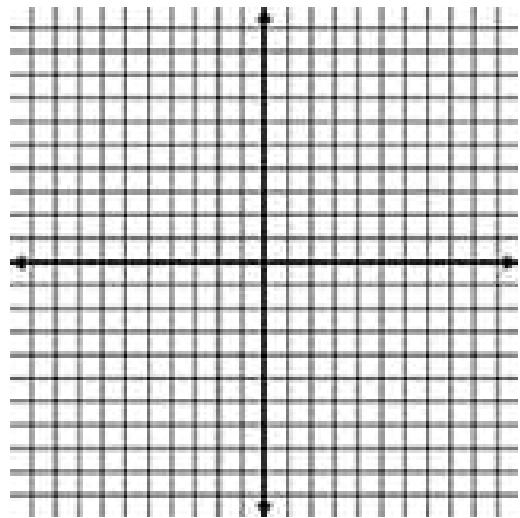
HORIZONTAL AND VERTICAL LINES

The graph of _____ is a _____ line. The _____ is _____.

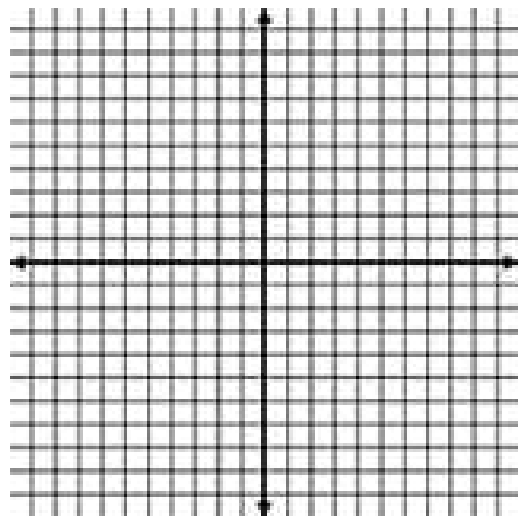
The graph of _____ is a _____ line. The _____ is _____.

Example 3: Graph.

a. $y = 8$

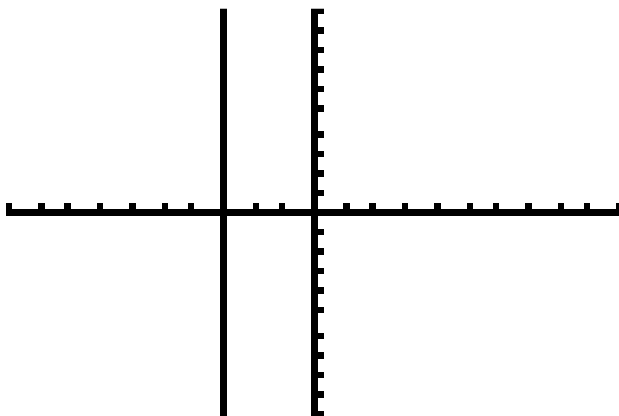


b. $12x = -60$

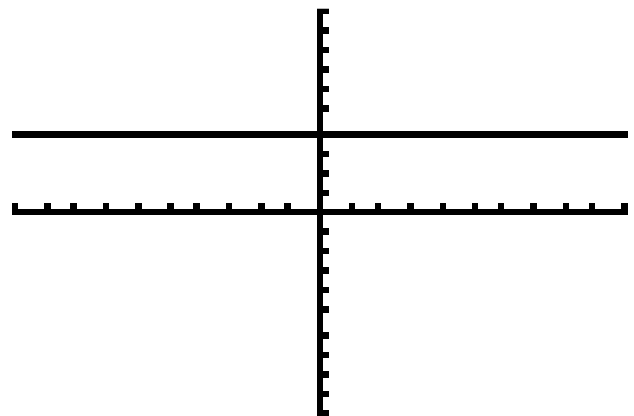


Example 4: Write an equation for each graph.

a.



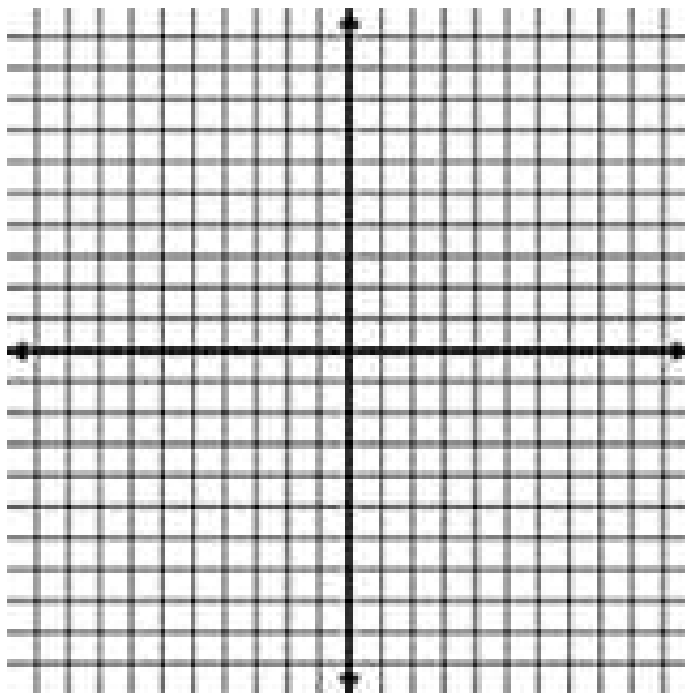
b.



APPLICATION

A new car worth \$24,000 is depreciating in value by \$3000 per year. The mathematical model $y = -3000x + 24000$ describes the car's value, y , in dollars, after x years.

- Find the x -intercept. Describe what this means in terms of the car's value.
- Find the y -intercept. Describe what this means in terms of the car's value.
- Use the intercepts to graph the linear equation.



- Use your graph to estimate the car's value after five years.