

## Algebra RH

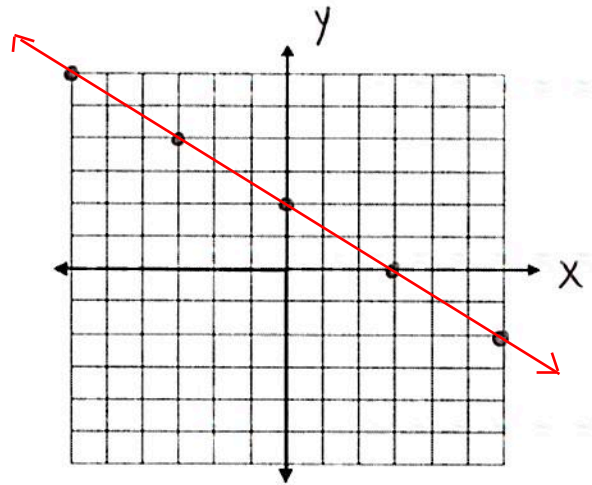
Essential Question: Is there another method which can be used to graph a linear function?

Do Now: On the following set of axes,  
graph  $2x + 3y = 6$ .

$$3y = -2x + 6$$

$$y = -\frac{2}{3}x + 2$$

x	y
-6	6
-3	4
0	2
3	0
6	-2



### Finding the Intercepts of a Line

**x-intercept:** the point where the graph crosses the x-axis  
intersects the x-axis at  $(3, 0)$

**y-intercept:** the point where the graph crosses the y-axis  
intersects the y-axis at  $(0, 2)$

standard form  $Ax + By = C$

Finding the x-intercept:

$$Ax + By = C$$

$$Ax + B(0) = C$$

$$Ax = C$$

$$x = \frac{C}{A}$$

derivation  
of  
proof

Finding the y-intercept:

$$Ax + By = C$$

$$A(0) + By = C$$

$$By = C$$

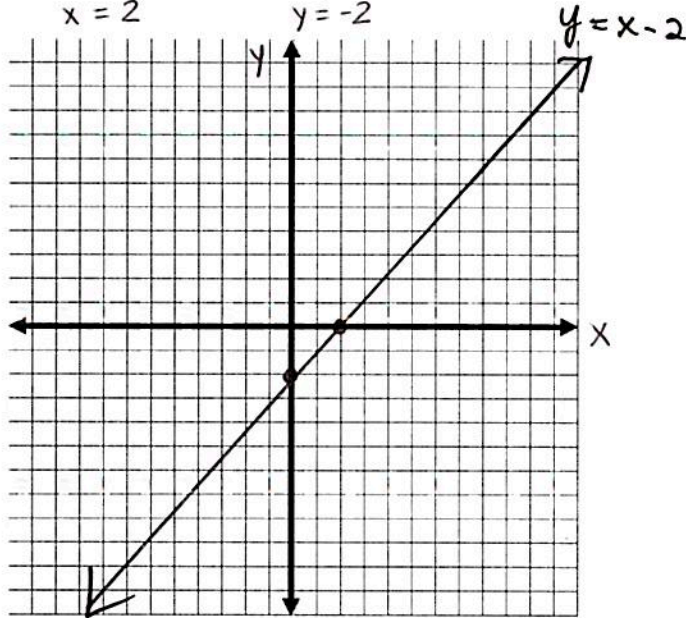
$$y = \frac{C}{B}$$

## Making Quick Graphs using x and y intercepts

Graph  $y = x - 2$  and  $3.5x + 7y = 14$  on the axes using the intercept method.

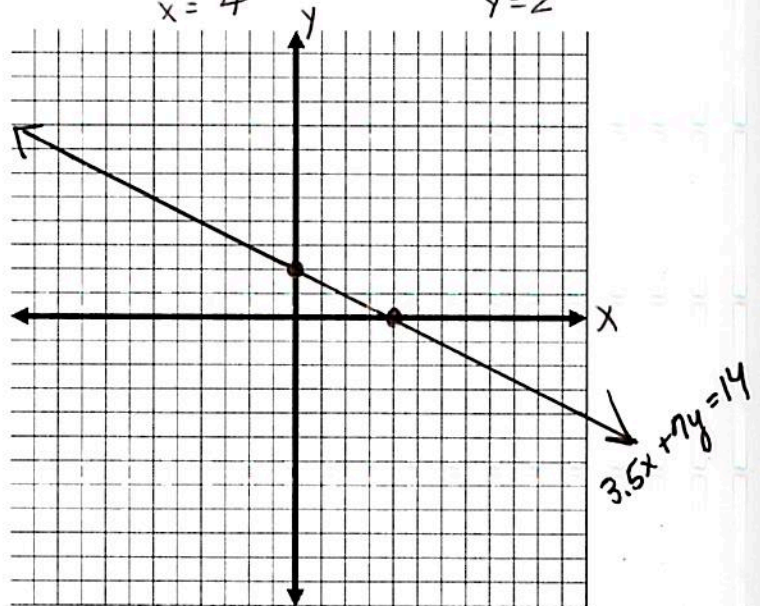
$$-x + y = -2$$

x-int:  $(x, 0)$     y-int:  $(0, y)$   
 $-x = -2$      $-0 + y = -2$   
 $x = 2$      $y = -2$



x-int:  $(x, 0)$   
 $3.5x + 7(0) = 14$   
 $3.5x = 14$   
 $x = 4$

y-int:  $(0, y)$   
 $3.5(0) + 7y = 14$   
 $7y = 14$   
 $y = 2$

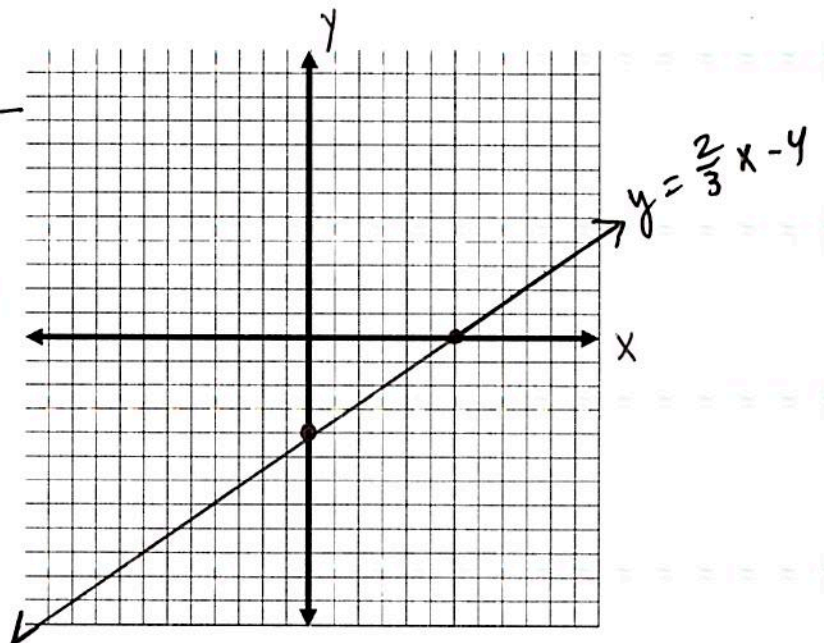


How would we graph  $y = \frac{2}{3}x - 4$  using the intercepts method?

$$-\frac{2}{3}x + y = -4$$

$x = \frac{-12}{-2}$   
 $x = 6$   
 $y = \frac{-12}{3}$   
 $y = -4$

x-int: $(x, 0)$	y-int: $(0, y)$
$-2x + 3(0) = -12$	$-2(0) + 3y = -12$
$-2x = -12$	$3y = -12$
$x = 6$	$y = -4$
$(6, 0)$	$(0, -4)$



Find the x and y-intercepts of the following linear function:  $y = \frac{1}{2}x + \frac{3}{5}$ .

$$-\frac{1}{2}x + y = \frac{3}{5}$$

$10(-\frac{1}{2}x + y) = 10(\frac{3}{5})$

$-5x + 10y = 6$	x-int: $(x, 0)$	y-int: $(0, y)$
$-5x = 6$	$-5x = 6$	$10y = 6$
$x = \frac{6}{-5}$		$y = \frac{6}{10} = \frac{3}{5}$