

## 2.1 Graphing Linear Relationships

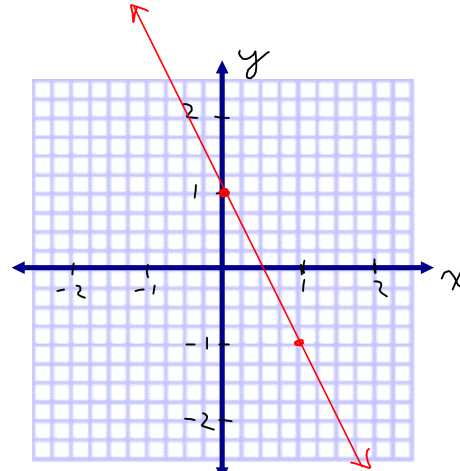
How can you graph a linear relation?

1. Make a table of values
2. Find the x and y intercepts
3. Determine the slope and y-intercept ( $y = mx + b$ )

Ex. 1 Graph using a table of values

a)  $y = -2x + 1$

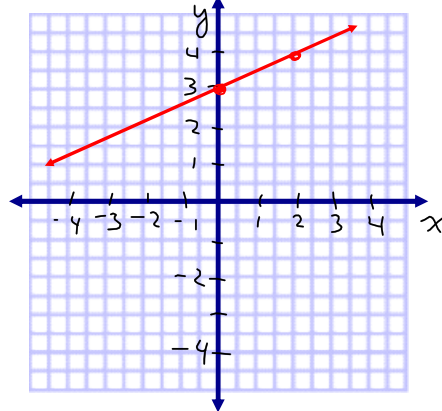
x	y
-2	5
-1	3
0	1
1	-1
2	-3



b)  $y = \frac{1}{2}x + 3$

Select x-values that are multiples of 2 to avoid fractions

x	y
-4	1
-2	2
0	3
2	4
4	5



### Communication Errors

- Arrows on x and y-axes as well as the line
- Label the line
- Label axes
- Use a ruler and pencil
- Must show a scale

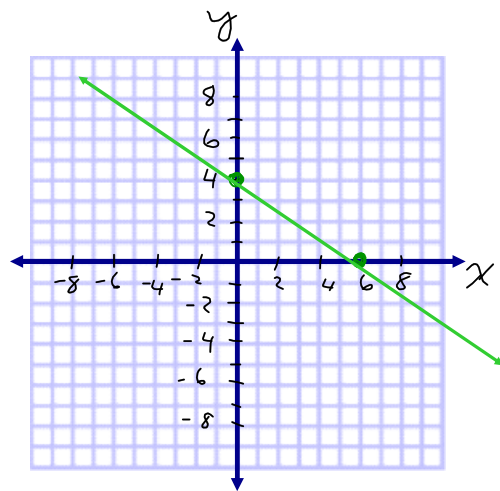
## Ex. 2 Graph using x and y-intercepts

Why?

- at the x-intercept,  $y = 0$
- at the y-intercept,  $x = 0$


$$2x + 3y = 12$$

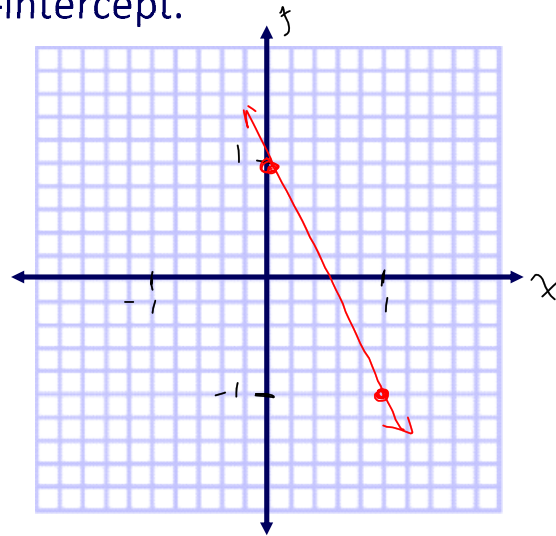
x-intercept	y-intercept
$y = 0$	$x = 0$
$2x + 3(0) = 12$	$2(0) + 3y = 12$
$2x = 12$	$3y = 12$
$x = 6$	$y = 4$
$(6, 0)$	$(0, 4)$



Ex. 3 Graph using the slope and y-intercept.

a)  $y = -2x + 1$

 slope  $m = -2$   
 y-intercept  $b = 1$   
 $(0, 1)$




b)  $4x = 20 - 5y$

$4x + 5y = 20$

$5y = 20 - 4x$

$5y = -4x + 20$

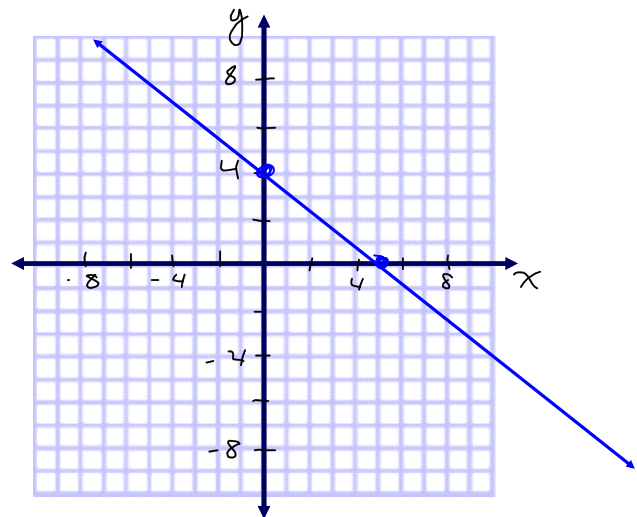
$y = -\frac{4}{5}x + 4$

 MUST rearrange into the form  $y = mx + b$

y-int  
4

Slope

$-\frac{4}{5}$  rise -4  
 run 5

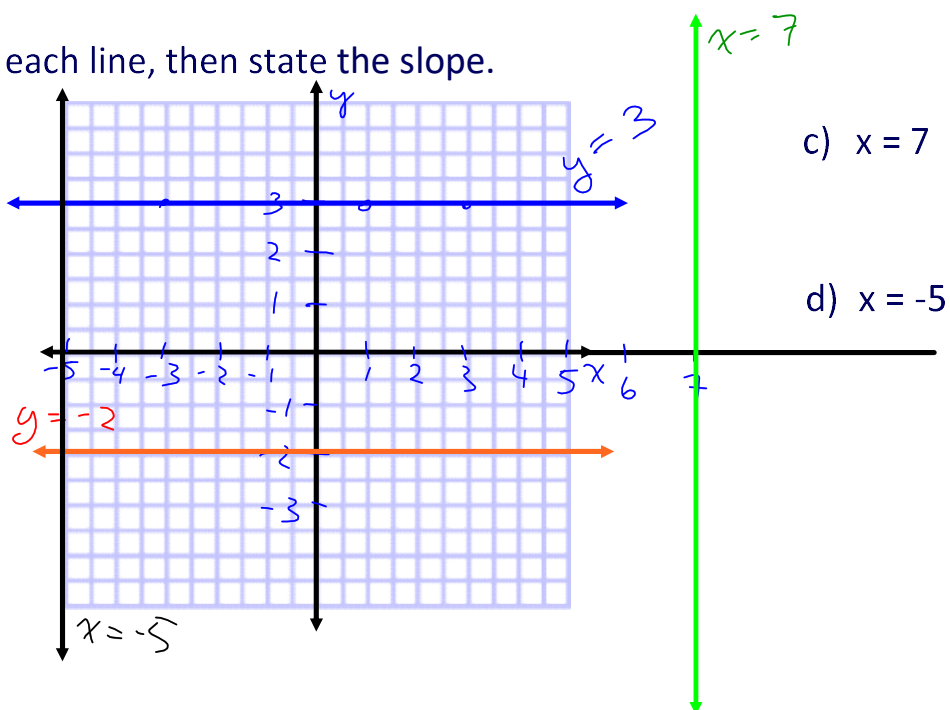


Special Cases

Ex. 4 Graph each line, then state the slope.

a)  $y = 3$

b)  $y = -2$



## Practice!

Set 1: p. 5 #5a,6ab,7ab,8ac

Set 2: p. 5 #5d,6d,7bd,8ac