1.1 Graphing Linear Relationships

How can you graph a linear relation?

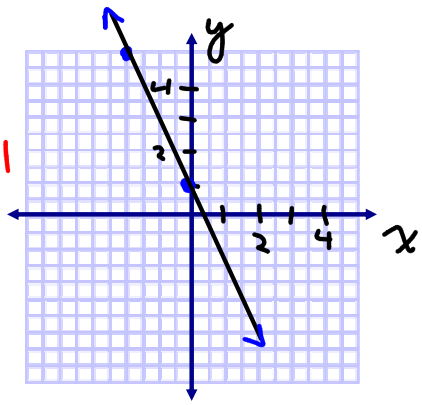
1. Make a table of values
2. Find the x and y intercepts
3. Determine the slope and y-intercept (y = mx + b)

Ex. 1 Graph using a table of values

a) $y = -2x + 1$

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

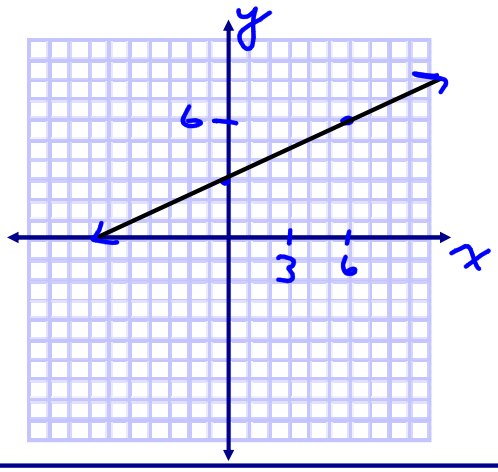
$y = -2(-2) + 1$
$= 5$



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

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

x	y
0	3
2	4
4	5
6	6



Pull!!

How to Avoid 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

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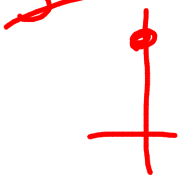
Ex. 2 Graph using x and y-intercepts

Why?

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

x-int

y-int



$2x + 3y = 12$

x-intercept

$y = 0$

$2x + 3(0) = 12$

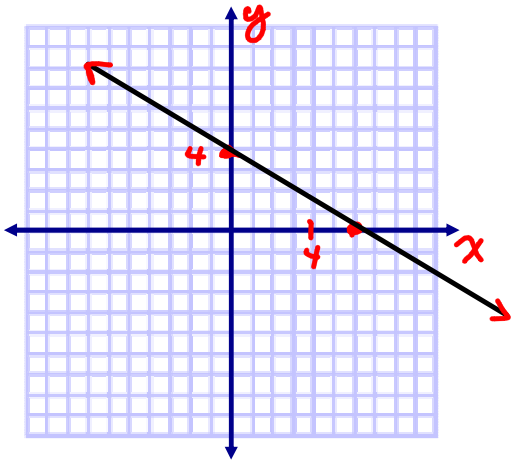
$x = 6$

y-intercept

$x = 0$

$2(0) + 3y = 12$

$y = 4$

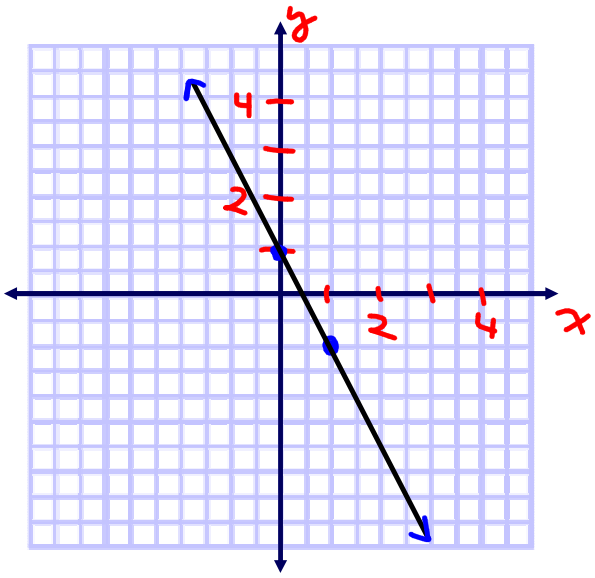


Ex. 3 Graph using the slope and y-intercept.

a) $y = -2x + 1$

slope
$m = -2$

y-intercept
$b = 1$



b) $4x = 20 - 5y$

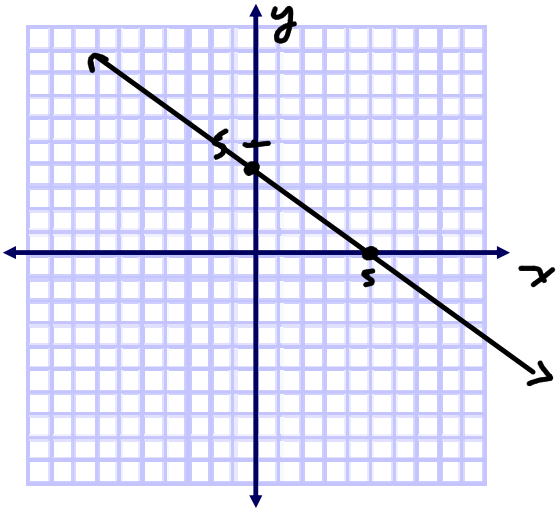
MUST rearrange into the form $y=mx+b$

$4x+5y=20$

$5y=-4x+20$

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

$m=-\frac{4}{5}$ $b=4$



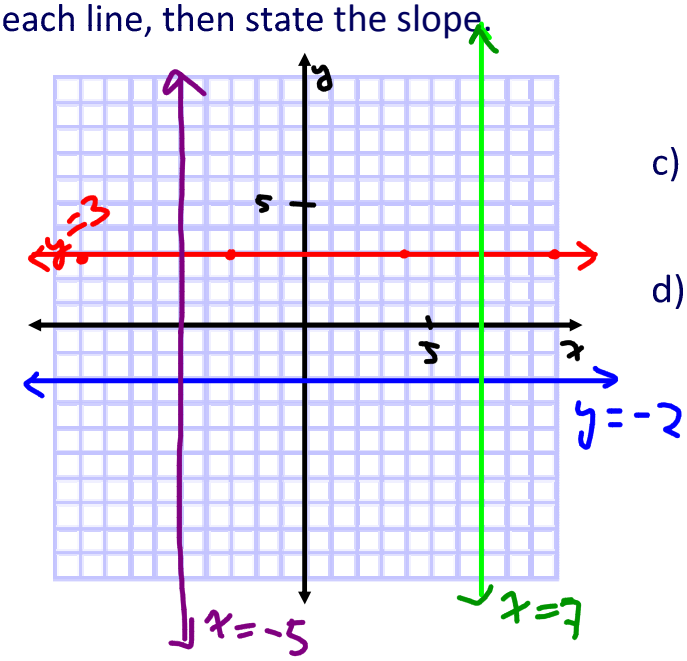
Special Cases

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

a) y = 3

$y = 0x + 3$

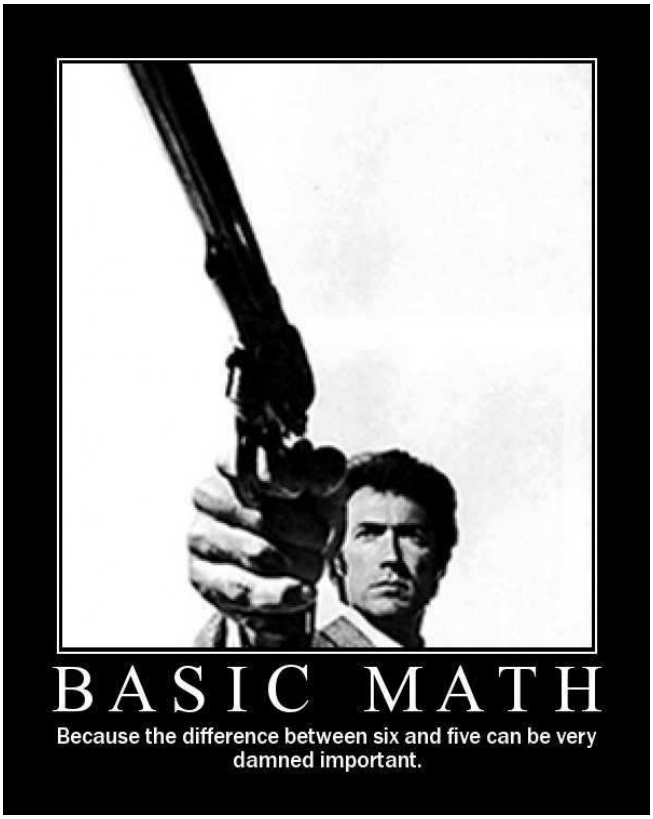
b) y = -2



c) x = 7

d) x = -5

Your Turn:
Page 5 #6bd,7bd,8



http://www.mathplayground.com/SaveTheZogs/SaveTheZogs.html

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