

## Review of graphing - Just the line part

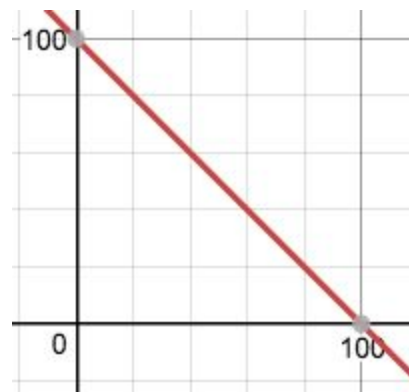
### Simple totals

Example:

$$x + y = 100$$

Both the x and y add up to a number. When this happens, the graph will always look like this:

x	y
0	100
100	0



## Complex Totals

Example:

$$2x + 3y = 30$$

The x and y are being added but need co-efficients to work with the total. (see slideshow). This requires a bit of algebra, but would look like this:

$$\text{Sub } x = 0$$

$$2(0) + 3y = 30$$

$$3y = 30$$

$$Y = 10$$

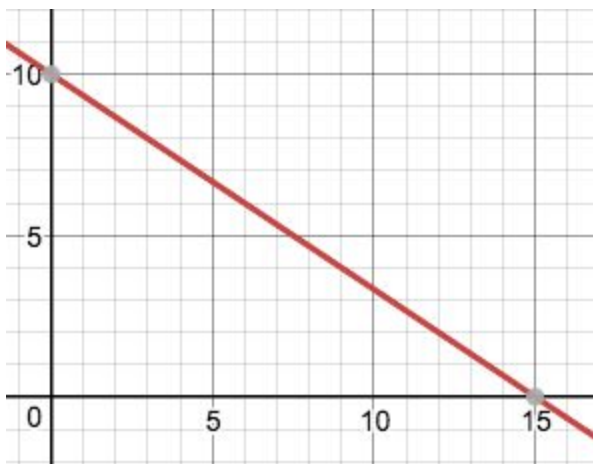
$$\text{Sub } y = 0$$

$$2x + 3(0) = 30$$

$$2x = 30$$

$$x = 15$$

x	y
0	10
15	0

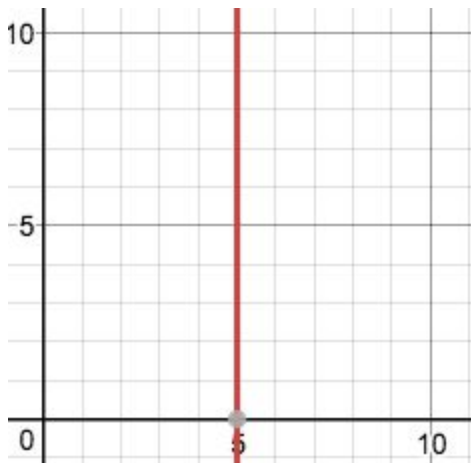


## Smiley Face Lines - 😊

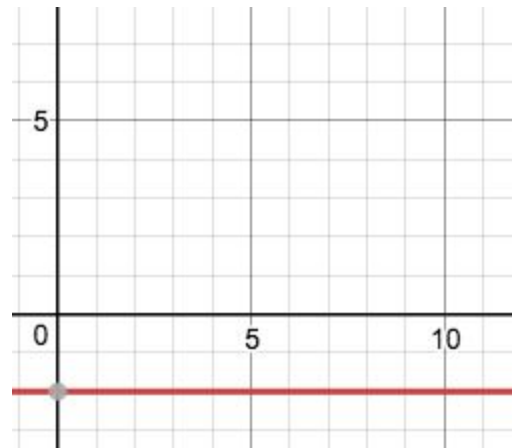
These lines also have a total in their sentence, but the total only relates to one of the variables. These require no algebra! In some it is only the x, while in others it is only the y.

### Examples

$$X = 5 \text{ (vertical)}$$



$$y = -2 \text{ (horizontal)}$$



## Comparing two Variables

These sentences have no total, but compare the number of x's to y's or vice versa. They are typically written in two forms. The most common produces an direct variation.

### Example 1

$$X = 2Y \text{ ("x is twice as big as y")}$$

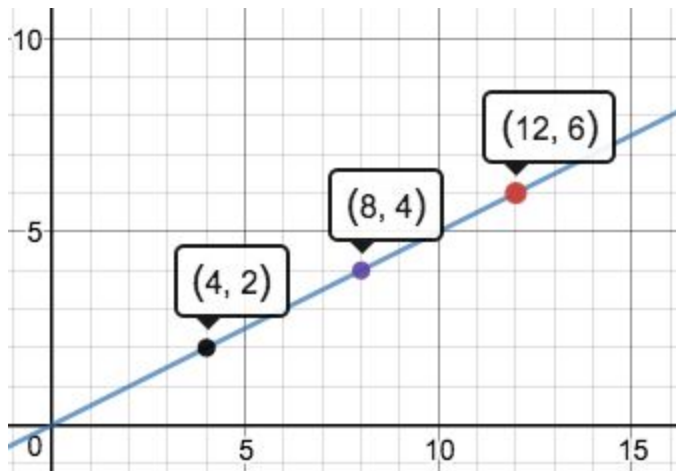
Sub  $x = 0$       Sub  $y = 0$       Sub any value you want for 1 variable and solve the other! ( $y = 4$ )

$$0 = 2Y \qquad x = 2(0) \qquad x = 2(4)$$

$$0 = Y \qquad y = 0 \qquad x = 8$$

As long as your x in this example is twice the Y (as per the sentence) the values you choose will work...look at the graph and you will see!

X	Y
0	0
0	0
8	4



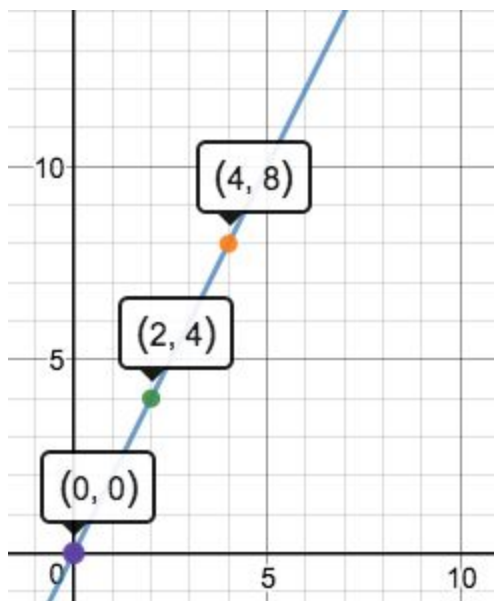
## Example 2

$$y = 2x \text{ or } 2x = y \text{ (same)}$$

In this example, the Y is twice as big as the x, because we are multiplying the x by two to make it equal to the y.

The table would now look like this when I substituted  $x = 0$ , and  $Y = 0$  and  $Y = 4$ ...watch the pattern in the graph.

X	Y
0	0
0	0
2	4



What do you think  $x = y$  should look like when you graph it? Check!