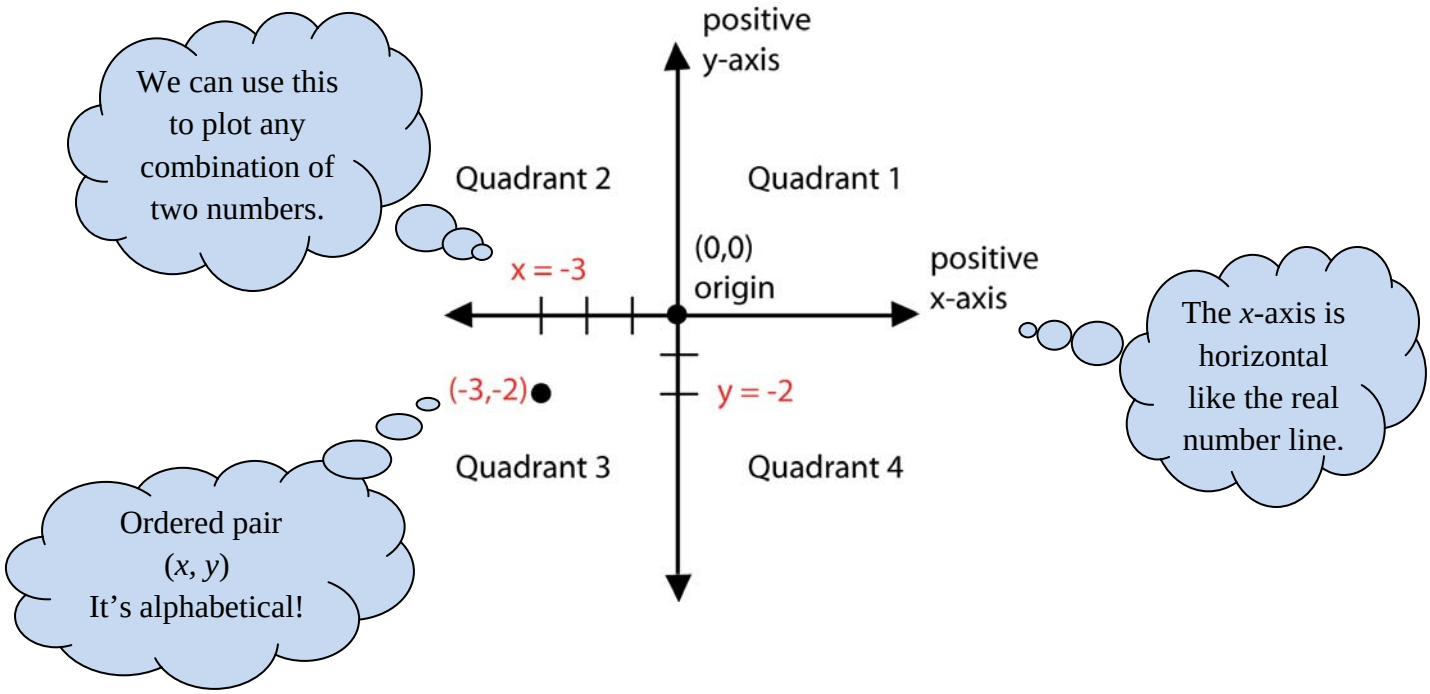
Understanding the basics of the *xy*-plane will help a lot when we start graphing equations.

Elementary algebra
Class notes
Using the Cartesian Plane (section 3.1)

Ordered Pairs and the Cartesian Plane:

The Cartesian plane is also called the rectangular coordinate system or simply the *xy*-plane.



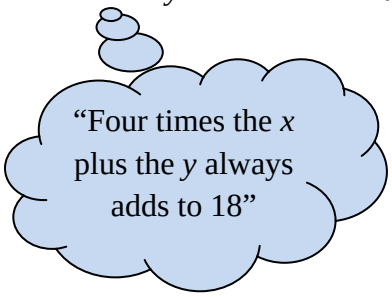
expl 1: Draw your own *xy*-plane with five, evenly-spaced ticks marks in each direction. Plot the points (2, 4), (-3, 4), (4, 0), and (0, -3).

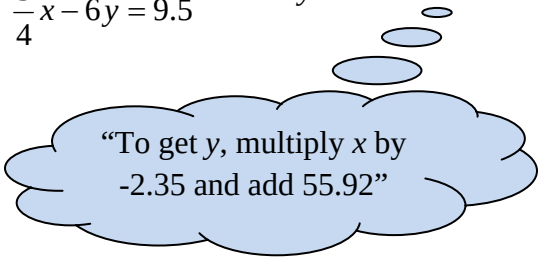
Equations with *x* and *y*:

These equations show the relationship between two variables. In other words, they show how *x* and *y* are related.

expls: $y = 2x^2 + 3x + 13$ $y = -3x - 7$ $3x^2 + 5y^2 = 15$ $3a + b = 8$

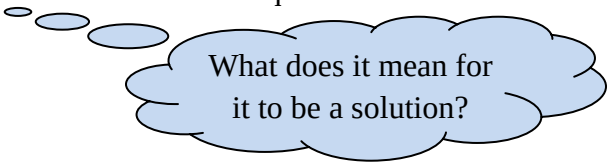
$4x + y = 18$ $d = 7.5r + 23.575$ $\frac{3}{4}x - 6y = 9.5$ $y = -2.35x + 55.92$





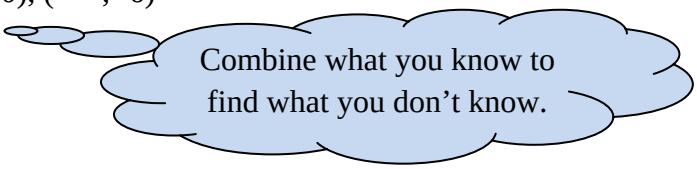
expl 2: Determine if the following ordered pairs are solutions to the linear equation.

$4x + y = 18$; (4, 2), (3, 3), (5, -2)

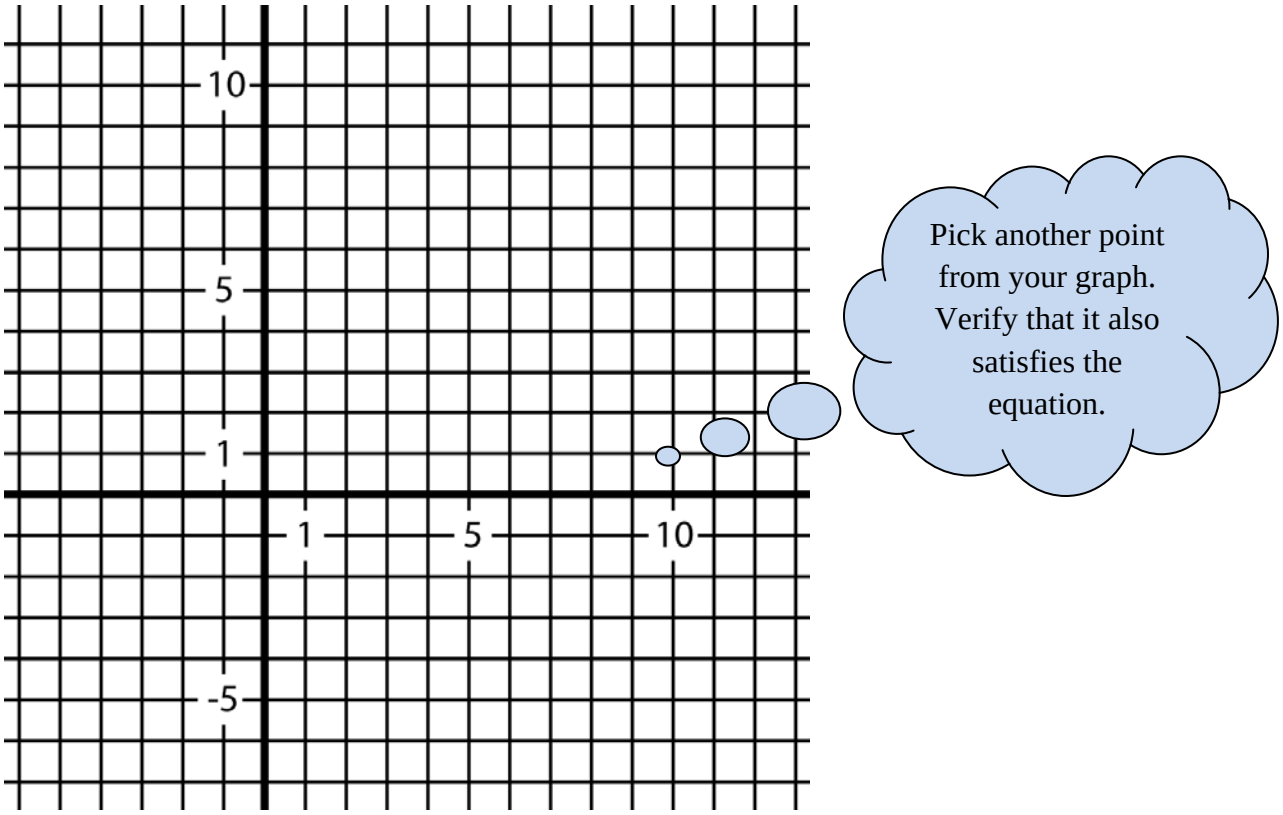


expl 3: Complete each ordered pair so it is a solution of the equation $4x + y = 18$.

(3,), (, 10), (, -6)



Use the graph below to plot your points from example 3. Draw a line (using a straight edge) through the points to complete the graph of $4x + y = 18$.



Worksheet: Things to know about your calculator (Texas Instruments – 82, 83, 85, 86):

A laundry list of things I have found useful over the years. Read it over and try out the stuff it talks about. If you have a TI84, use the instructions for the TI83. If you have a different brand calculator, try to figure out if your calculator has the same functionality.

Worksheet: Graphing calculator basics (TI82, 83, 84, 85, or 86):

This is a basic introduction to the calculator including home screen calculations, fraction conversion, and graphing linear functions with window tweaks. If you have a different brand calculator, try to figure out how to get your calculator to do the same stuff.

expl 4: The average amount of money y spent per person on recorded music from 2001 to 2006 is given by $y = -2.35x + 55.92$. In this equation, x represents the number of years after 2001.

a.) Complete the table.

x	1	3	5
y			

So 2004 would correspond to $x = 3$.

b.) Find the year in which yearly average amount spent per person was approximately $46.

What do x and y represent? Which were you given and which do you want to find?

expl 5: Solve the equation for y.

Isolate y.

$2x + 9y = 18$