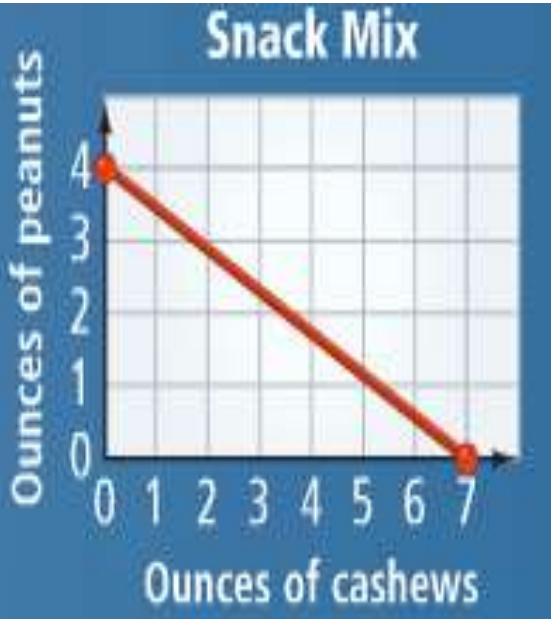
Standard Form

WOLFF

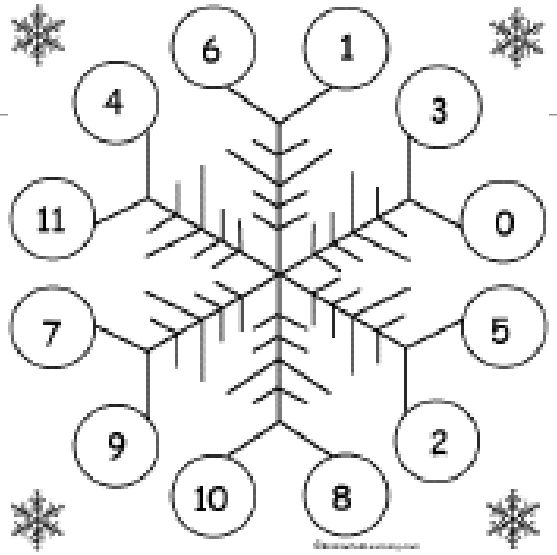
ALGEBRA 1H

An athlete wants to make a snack mix of peanuts and cashews that will contain a certain amount of protein. Cashews have 4 g of protein per ounce, and peanuts have 7 g of protein per ounce. How many grams of protein will the athlete's mix contain? What do the points (7, 0) and (0, 4) represent? Explain.



This is just an intro problem – don't add to notes ☺

Review concept - Integers



Integers are non-fraction, non-decimal numbers

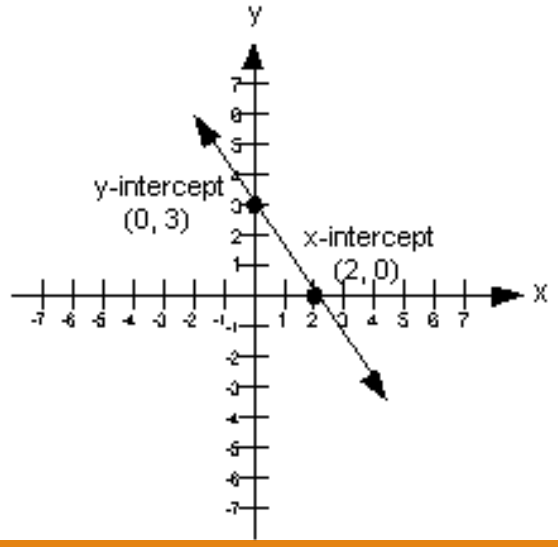
- Negatives and zero, inclusive

Examples: -5, 0, and 31 are all integers

Review Concept - Intercepts

The x-intercept is the point where the graph crosses the x-axis (x, 0)

The y-intercept is the point where the graph crosses the y-axis (0, y)



New stuff – yaaaaaaaaay!

Standard Form of a Linear Equation

$$Ax + By = C$$

A and B and C are all integers

A must be positive

A and B cannot *both* be zero

Any linear equation can be written in this format

Practice: Which of these equations are in Standard Form?

$y = 7x + 8$

$\frac{1}{2}x + 3y = 9$

$-2x + 7y = 11$

$x = 15$

$3x - 2y = 15$

$y = 11$

$8x + 4y = -17$

$.06x + .2y = .25$

Converting to Integers

Decimals

- Multiply by a power of ten
- Use as many zeros as there are place values to the right of a decimal point

Example

$0.2x + 0.03y = 15$

(Multiply by 100)

$20x + 3y = 1500$

Fractions

- Multiply by the least common denominator

Example

$y = -3/7x + 2$

(Multiply by 7)

$7y = -3x + 14$

(Convert to standard form by adding 3x to both sides)

$3x + 7y = 14$

More Practice: Rewrite in Standard Form

$y = 7x + 8$

$\frac{1}{2}x + 3y = 9$

$-2x + 7y = 11$

$.06x + .2y = .25$

x and y intercepts

Find the x-intercept by substituting zero for y

Find the y-intercept by substituting zero for x

It is sometimes helpful to make a chart ☺

x	y
	0
0	

Let's try one!

$2x + 3y = 12$

x-intercept:

$2x + 3(0) = 12$

$\frac{2x}{2} = \frac{12}{2}$

$x = 6$

y-intercept:

$2(0) + 3y = 12$

$\frac{3y}{3} = \frac{12}{3}$

$y = 4$

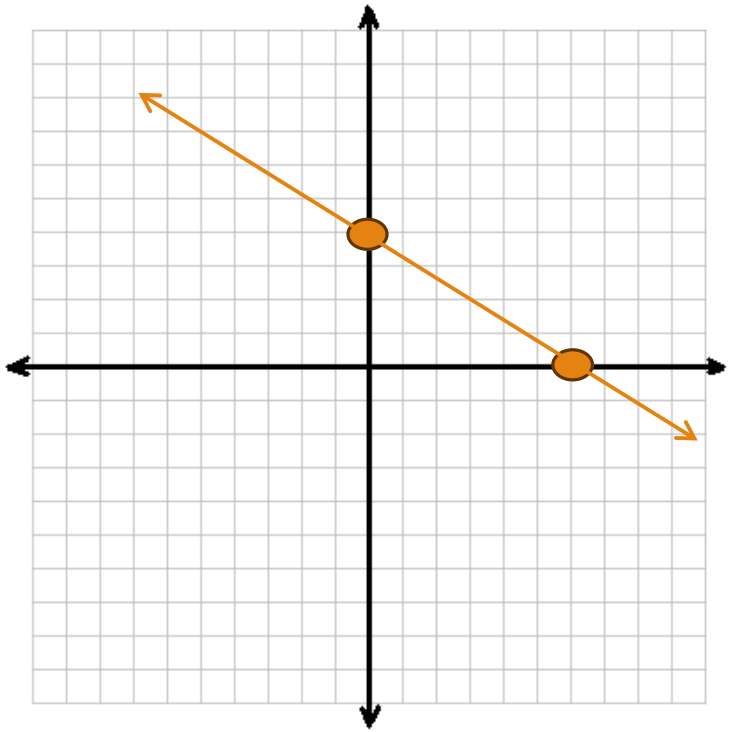
X	Y
6	0
0	4

Graphing using Intercepts

Plot the intercepts.

Draw a line through them.

X	Y
6	0
0	4



Your turn……

Find the x and y intercept for each of the equations.

$7x + 3y = 42$

X	Y
0	
	0

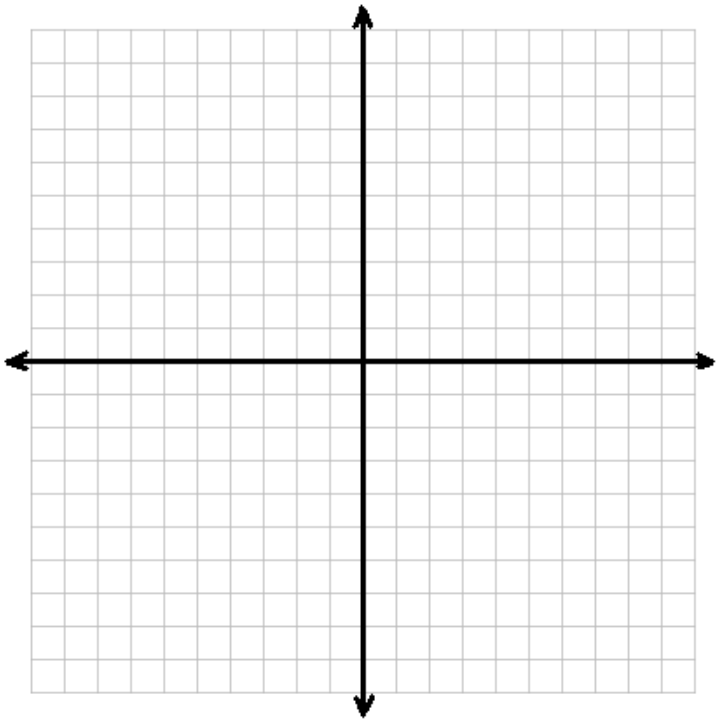
$5x - 3y = 18$

X	Y
0	
	0

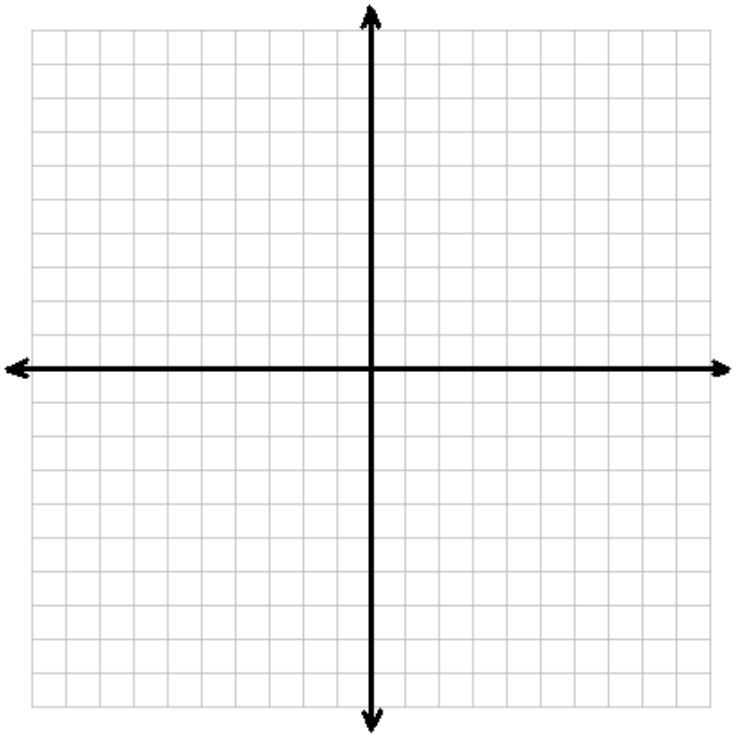
Try these!

Find the intercepts and graph ☺

$5x - 6y = 60$

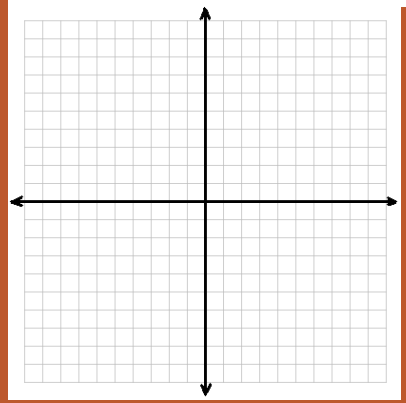


$3x + 8y = 12$

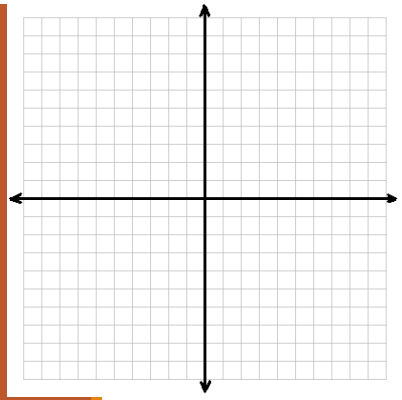


What is the graph of each equation?

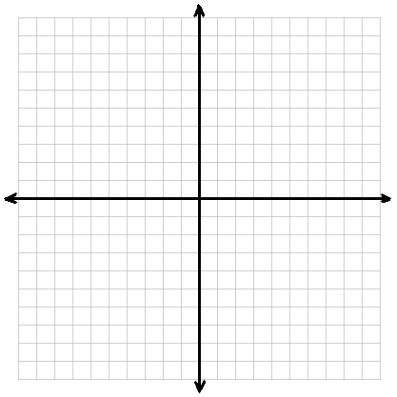
a. $x = 4$



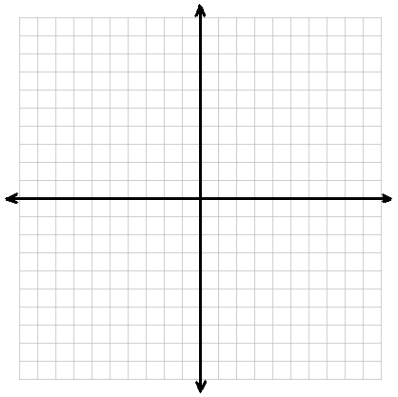
b. $x = -1$



c. $y = 0$



d. $y = 1$



That’s all folks! This part of the lesson is over. ☹