

Write your questions here!

A large portion of Algebra involves graphing. You have already been introduced to functions with given input and outputs. As we learn to graph these functions, it will be easiest to have the output (or Y) isolated.

Our goal is to transform equations that like this:

$$2y + 4x = 12$$

into equations that look like this:

$$y = -2x + 6$$

There are many reasons why we want to do this, but the main reason is because the lines will be easier to graph.

We will use the same skills we learned in Unit 3 when we learned how to solve equations.

Examples. Solve the following equations for y.

1.  $2y = 4x - 10$       2.  $5y + 40 = 20x$       3.  $4x - 6y = 12$

You try 3:

1.  $5y = 10x + 25$       2.  $5y - 20 = 15x$       3.  $5x - 2.5y = 25$



More Examples:

1.  $x - y = 10$

2.  $2x - 3y - 21 = 0$

3.  $6x = 7y + 6x$

Now, summarize  
your notes here!

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4.4 Review Skills

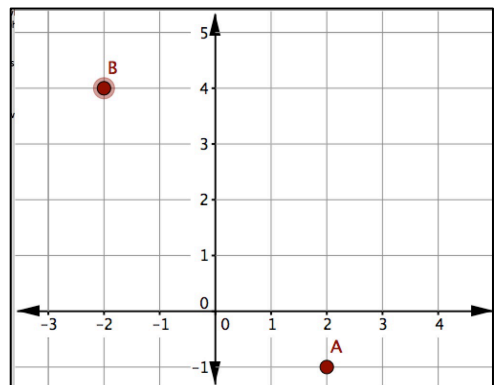
1. Solve:

$$-6x - 7x = -2$$

2. Simplify:

$$-3(-12x - 5) + 10$$

3. Describe how to move from Point A to Point B:



\_\_\_\_\_ units in the y direction

\_\_\_\_\_ units in the x direction

6. Describe how to move from point C(0, -1) to Point D(-3, 7):

## Practice 4.4 (Solving for Y)

**Solve each equation for y.**

1)  $-3 = y + x$

2)  $2x + y = -1$

3)  $-8x = -y + 3$

4)  $2x + 3y = 0$

5)  $5x + 12 = -4y$

6)  $3x - 2y = -6$

7)  $5 + 3x = 5y$

8)  $-y = -2x - 5$

9)  $0 = -2 - y$

10)  $20 = x - 5y$

11)  $-y - 2x = -2$

12)  $-7x + 12 = -3y$

13)  $10 = -2y - x$

14)  $0 = -6x + 3y - 12$

15)  $2x + 2y = -2$

### Application 4.4

1. Solve for y:  $80 + 40x = 20y$

2. Solve for y:  $180 = 20y - 10x$

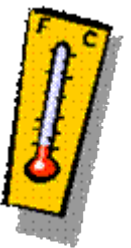
3. **Dance Machine.** Mr. Brust plans to drive to watch Mr. Sullivan in his dance recital at the Pfalz-Theater. He will travel 242 km on the Autobahn at an average speed of 130 km/h.

a. Transform the equation  $X = ry$  (where x = distance, r = rate, y = time), to find a formula for time (*Hint: Solve for y.*)

b. How much time does Mr. Brust need for the trip? Sub in for x and r to find out!

4. **Chillin'.** The formula for Celsius temperature is  $X = \frac{5}{9}(Y - 32)$  gives the Celsius temperature (X) in terms of the Fahrenheit temperature (Y).

a. Transform the formula to find the Fahrenheit temperature in terms of Celsius temperature. (hint: Solve for y!!)



b. In January 2012, the coldest day in Baumholder recorded a temperature of  $-10^{\circ}\text{C}$ . How many degrees is that in Fahrenheit? (Double hint: plug into the Celsius Tempertaure! !!)