Warm-Up

1) Write an equation of the given points (-3, 4) & (5, 6)

2) Which of the following choices is the Associative Property

1) $4(x + 2) = 4x + 8$

2) $4 + 5 = 5 + 4$

3) $5 + (-5) = 0$

4) $4 + (3 + 1) = (4 + 3) + 1$

Oct 2-8:18 AM

Unit #1: Basics of Algebra

Lesson:

Literal Equations

"YOU CAN'T GET MUCH DONE IN LIFE IF YOU ONLY WORK ON THE DAYS WHEN YOU FEEL GOOD" -JERRY WEST

believe-to-achieve.tumblr.com

Sep 23-7:47 AM

Students can solve linear equations and inequalities in one variable

Equations with several variables (letters) are called <u>literal equations</u>.

Your job, usually, will be to solve the equation for one of the variables. The letters that do not represent your desired variable move to the other side of the equal sign so that the one variable you are solving for stands **alone**.

Even though there are more letters in these equations, the methods used to solve these equations are the same as the methods you use to solve all equations.
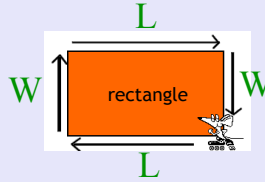
pythagorean theorem
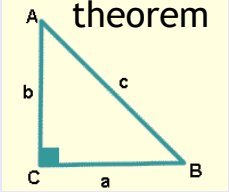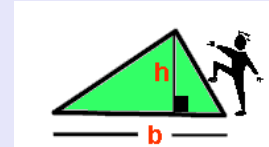
$$a^2 + b^2 = c^2$$

slope intercept form
$$y = mx + b$$

perimeter of a rectangle

$$P = 2L + 2W$$

area of a triangle

$$A = \frac{1}{2}bh$$

Sep 23-7:49 AM

Students can solve linear equations and inequalities in one variable

Example #1	Steps
Solve for x:	
$ax + b = c$ $\quad -b \quad -b$	1. Move b (the opposite of add is subtract)
$ax = c - b$ $\dfrac{ax}{a} = \dfrac{c-b}{a}$	2. Move a (the opposite of multiply is divide)
$x = \dfrac{c-b}{a}$	3. x is what we are solving for and it stands alone. Done.

Sep 23-7:49 AM

Students can solve linear equations and inequalities in one variable

LITERAL EQUATIONS CAN BE SOLVED THE SAME WAY EQUATIONS ARE SOLVED.

Remember get x by itself

Solve for x in both equations:

(a)　　$5x + 3 = 33$

(b)　$bx + r = h$

Sep 23-8:20 AM

Students can solve linear equations and inequalities in one variable

Solve each literal equation for x:

1) $ax + 3b = 2f$

2) $\dfrac{x - y}{2} = c$

Sep 23-8:23 AM

Students can solve linear equations and inequalities in one variable

Solve the Literal Equation

1) Solve for s:

$$A = s^2$$

2) Solve for h

$$V = \pi r^2 h$$

Sep 23-8:23 AM

Students can solve linear equations and inequalities in one variable

Solve the Literal Equation

1) Solve for x:

$$a(x + b) = w$$

2) Solve for m:

$$y = mx + b$$

Sep 23-8:23 AM

Students can solve linear equations and inequalities in one variable

The volume of a pyramid is given by

$$V = \frac{1}{3}\pi r^2 h$$

What is h expressed in terms of B and V?

Sep 23-8:23 AM

Homework: Solve the following Literal Equations for the letter **"a"**

1) $a^2 + b^2 = c^2$

2) $\dfrac{a}{b} = \dfrac{c}{d}$

3) $b = \dfrac{1}{2}ac^2$

4) $c = d(a+b)$

5) $ab = c + a$

6) $2(a+b) = c^3$

Nov 7-1:37 PM

Warm-Up

1) Solve for x:

$2x + y = 6$

2) Is the relation {(5, -4), (5, 6), (6, 3), (6, -2)} a function? Explain

Oct 15-10:21 AM

Unit #2: Linear Equations

Lesson:

Slope-Intercept

Form

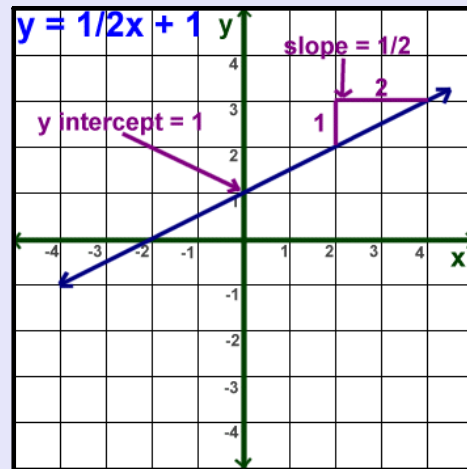THE ONLY PERSON YOU SHOULD TRY TO BE BETTER THAN IS THE PERSON YOU WERE YESTERDAY.

Oct 15-10:23 AM

Linear Equations

are written in

slope-intercept form

$$Y = mx + b$$

slope   y-intercept

y = 1/2x + 1

slope = 1/2

y intercept = 1

Oct 15-11:31 AM

Identify the **slope** and the **y-intercept**

1) y = -2x + 4

   m=

   b=

2) $y = \dfrac{1}{2}x - 6$

   m=

   b=

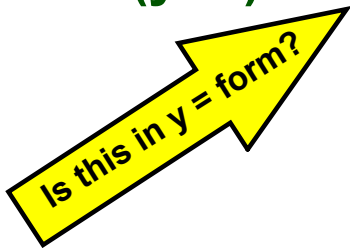3) $y = \dfrac{-3}{4}x - 9$

   m=

   b=

4) y = 6 + 5x

   m=

   b=
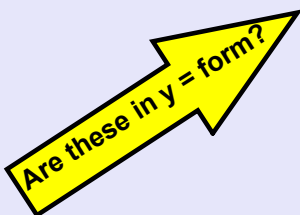
Oct 15-11:31 AM

Students can solve linear equations and inequalities in one variable. Students can identify the slope and y-intercept.

Before I can *identify* my slope and y-intercept I need to make sure my function is written in slope-intercept form (y =).

2x + 4 = y
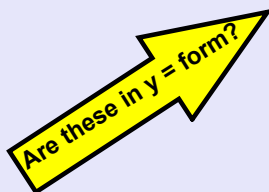
Is this in y = form?

m =

b =

Oct 15-11:31 AM

Students can solve linear equations and inequalities in one variable. Students can identify the slope and y-intercept.

Identify the slope and the y-intercept

1) -3x + y = 4   2) 5x - y = 6

Are these in y = form?

Oct 15-11:31 AM

Identify the slope and the y-intercept

3) 2x + 4y = 12   4) -3x - 6y = 18

Are these in y = form?

Oct 15-11:31 AM

Students can solve linear equations and inequalities in one variable. Students can identify the slope and y-intercept.

With a partner, Identify the slope and the y-intercept

1) $\dfrac{2}{3}x - 6 = 15$	2) -4 - 5x = y
3) 5x + 10y = 20	4) 3x - y = 18
5) 2y - 4x = 8	

Oct 15-11:31 AM

Homework:

Find the Slope and Y-intercept for Each Equation

1) $y = -\frac{4}{3}x + 1$ slope = _____

y-intercept = _____

2) $-x + 4y = -16$ slope = _____

y-intercept = _____

3) $5x + 3y = 24$ slope = _____

y-intercept = _____

4) $y = \frac{1}{2}x - 1$ slope = _____

y-intercept = _____

5) $y = \frac{1}{4}x - 2$ slope = _____

y-intercept = _____

6) $-x + 2y = -20$ slope = _____

y-intercept = _____

Oct 16-12:06 PM

Homework:

7) $y = \frac{1}{2}x + 4$ slope = _____

y-intercept = _____

8) $-5x + 4y = -16$ slope = _____

y-intercept = _____

9) $-5x + 3y = -9$ slope = _____

y-intercept = _____

10) $y = -\frac{2}{5}x - 2$ slope = _____

y-intercept = _____

Oct 16-12:06 PM

10

QUIZ

- Slope

- Writing equation of a line

- Literal equations

Nov 7-1:44 PM

Warm-Up

1. Determine the slope and y-intercept of the equation
3x - 2y = 4

Oct 15-10:21 AM

Unit #2: Linear Equations

Lesson:

Graphing Linear

Functions

"Find out who you are and be that person. That's what your soul was put on this Earth to be. Find that truth, live that truth and everything else will come."

—Ellen DeGeneres

Oct 15-10:05 AM

Students will be able to graph linear functions.

Equation of a Line: $y = mx + b$

slope y-intercept

⭐ **To graph a line the equation <u>must be</u> in y = mx + b form** ⭐

Graphing by hand
- start at the b value on the y-axis
- using the m (slope) rise the top number and run (always to the right) the bottom number
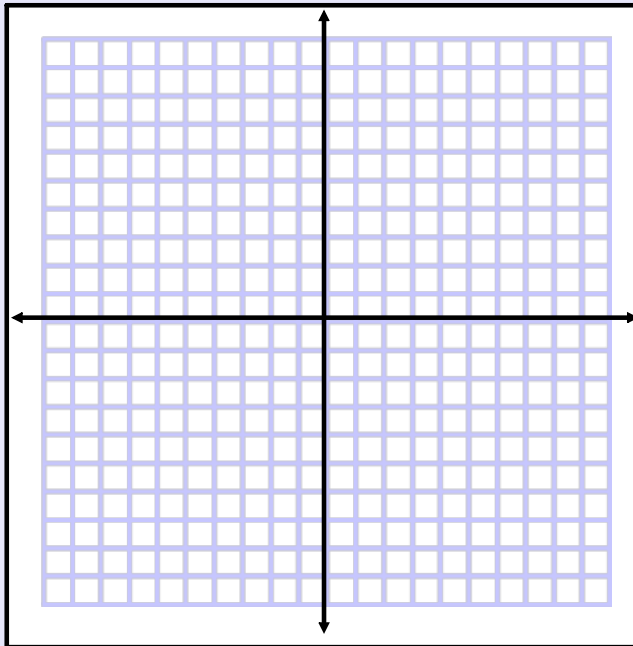
Graphing with the graphing calculator
- Push [STATPLOT F1 / Y=] and type the equation in
- Now push [2ND] [TABLE F5 / GRAPH] to get the table
- Plot all of your points between 10 and -10 and copy them into the chart

Always connect your dots with a straight line, put arrows on both ends and LABEL you line!!

Jul 9-3:19 PM

$\mathcal{G}raph\ the\ equation\ \ y = \dfrac{3}{2}x - 2$

What is the slope?

m =

How will you move?

What is the y- intercept?

b =

Where will you begin?

Jul 9-3:19 PM

$\mathcal{G}raph\ the\ equation\ \ y = \dfrac{1}{4}x + 2$
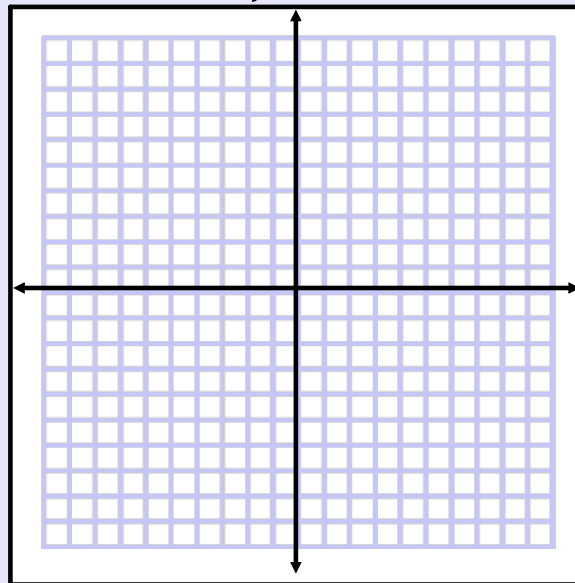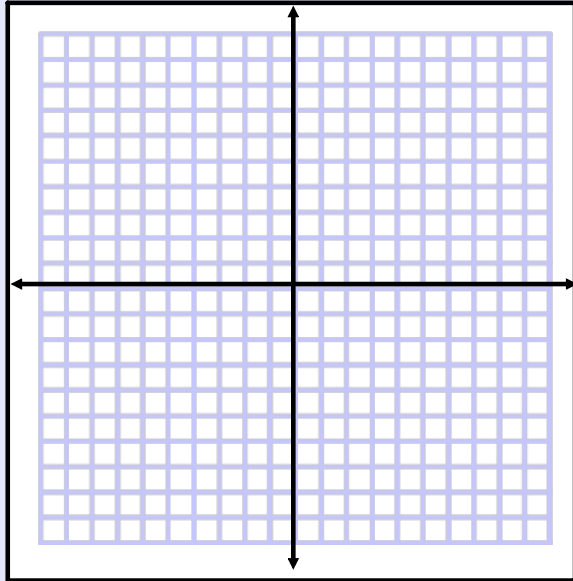
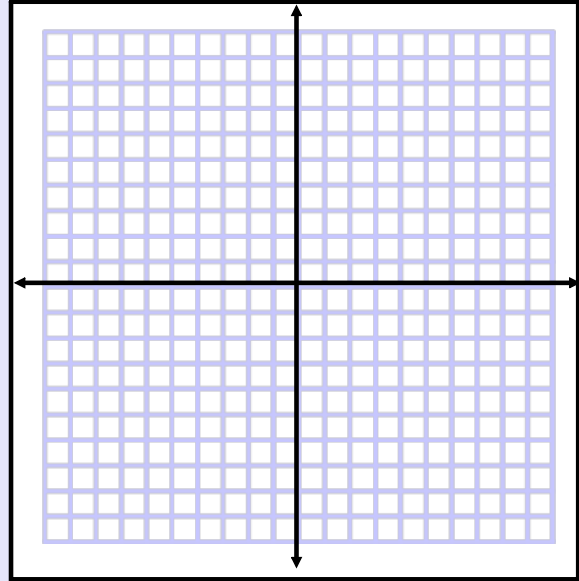$\mathcal{G}raph\ the\ equation\ \ y = -2x + 5$

Jul 9-3:19 PM

Students will be able to graph linear functions.
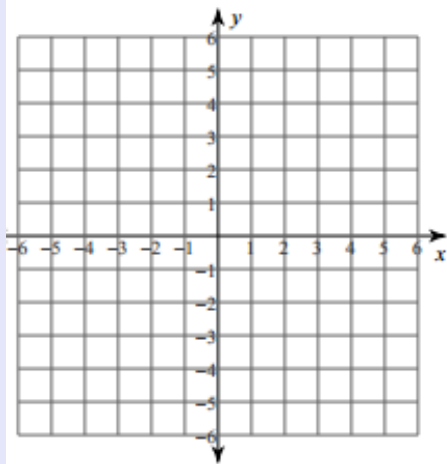
Graph the equation $y = x - 4$
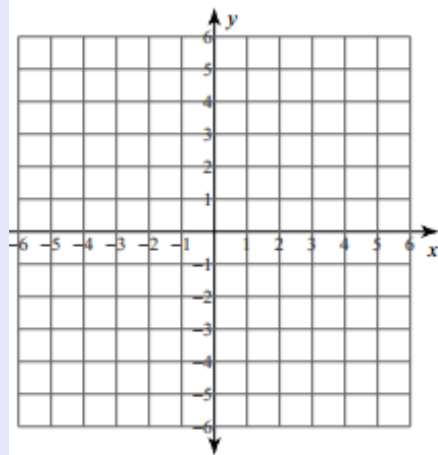
Graph the equation $y = -\dfrac{1}{2}x + 3$

Jul 9-3:19 PM

Homework

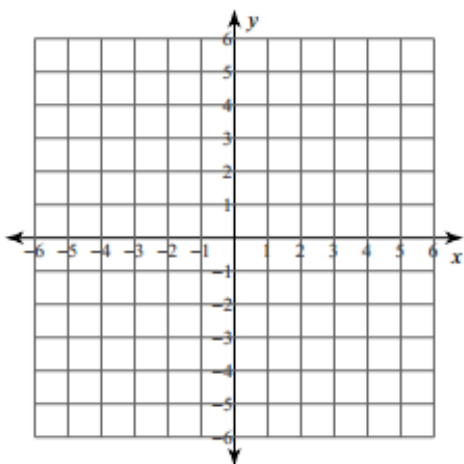1) $y = \dfrac{1}{4}x + 2$

2) $y = -\dfrac{1}{3}x + 3$
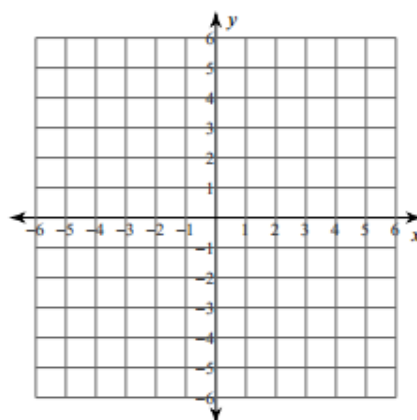
Jul 9-3:19 PM

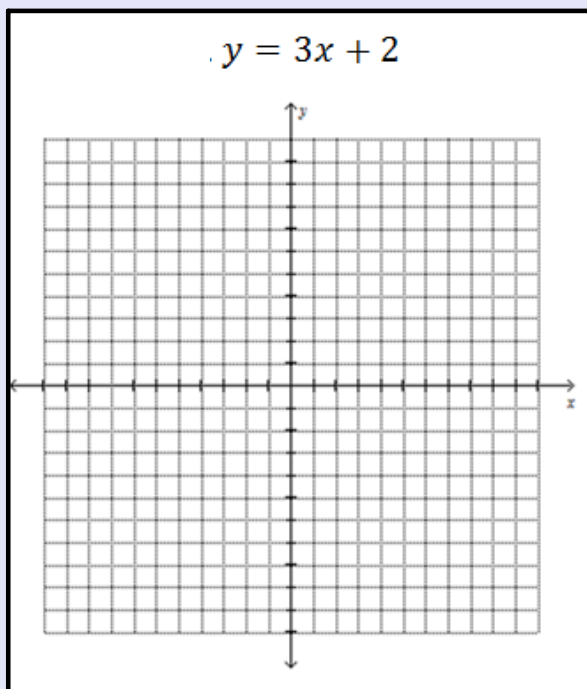**14**

Homework

3) $y = 2x + 5$

4) $y = \frac{1}{2}x - 2$

Jul 9-3:19 PM

Warm-Up

$y = 3x + 2$

Oct 15-10:21 AM

Unit #2: Linear Equations

Lesson:

Graphing Linear

Functions

NOTHING IS IMPOSSIBLE
THE WORD ITSELF SAYS
I'M POSSIBLE

Audrey Hepburn

Oct 15-10:05 AM

8. $2y = 4x + 6$

WATCH OUT!

www.littleamerica.co.in
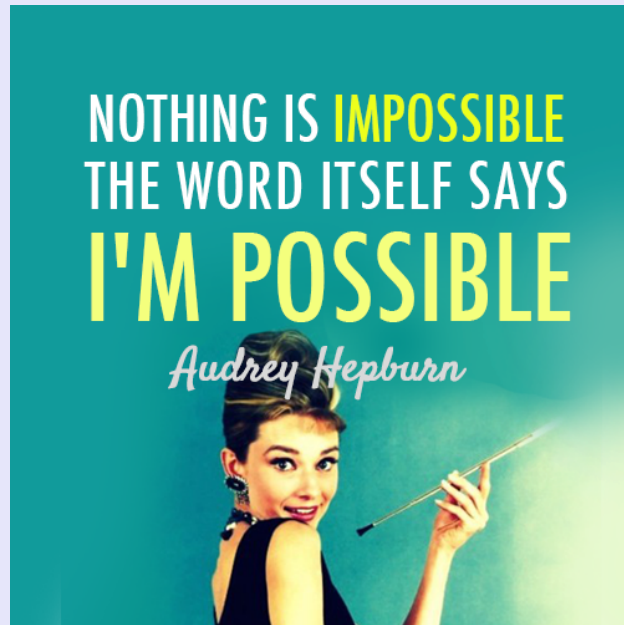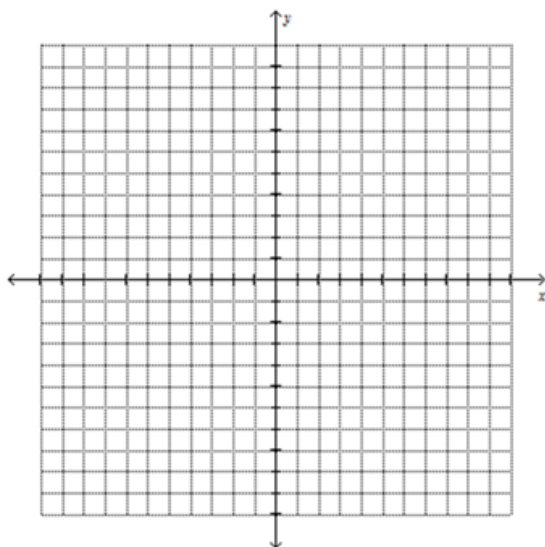
Oct 14-3:26 PM
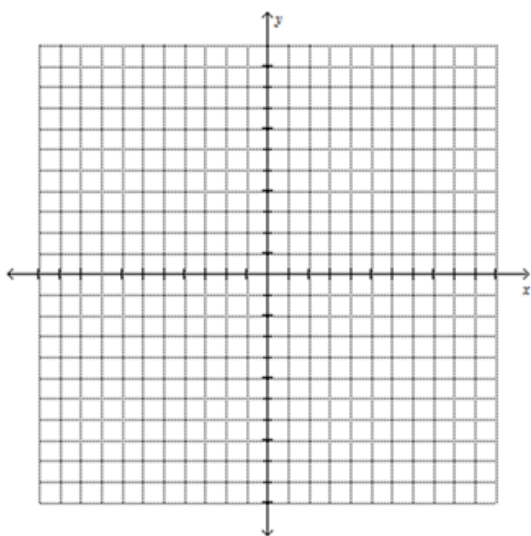
9. $6x + 2y = 8$ 10. $x - y = -3$

Oct 14-3:26 PM
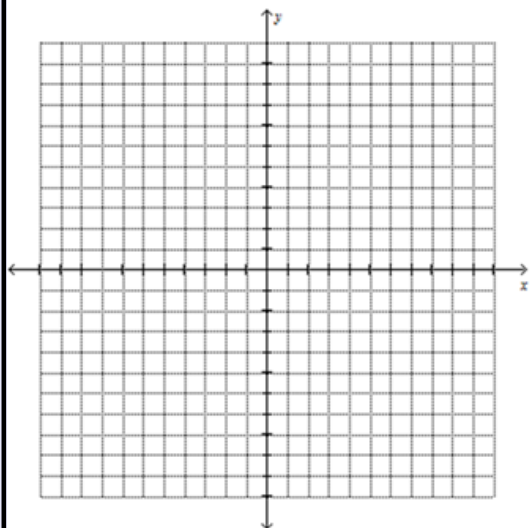
11. $2x + 3y = 9$ 12. $2y = -4x + 8$
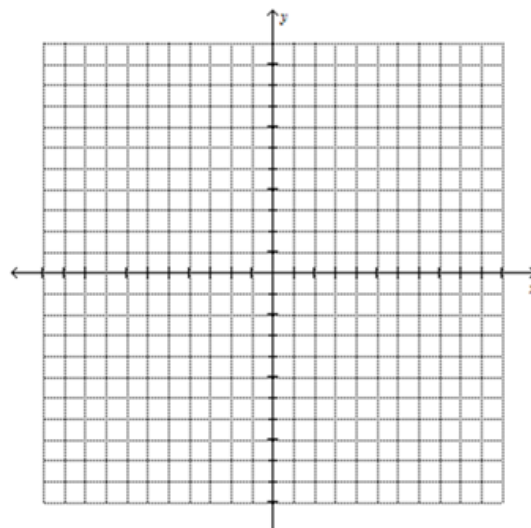
Oct 14-3:26 PM

Homework:

1) $7x + y = 5$
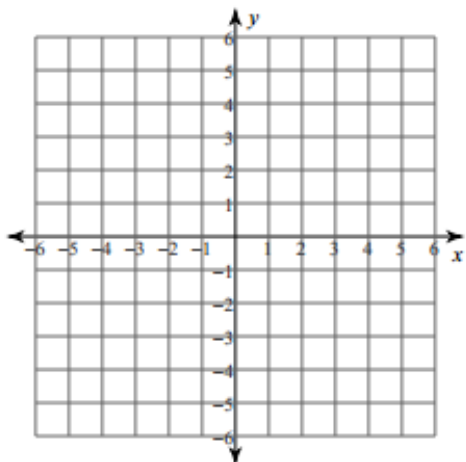
2) $3x + 5y = -5$
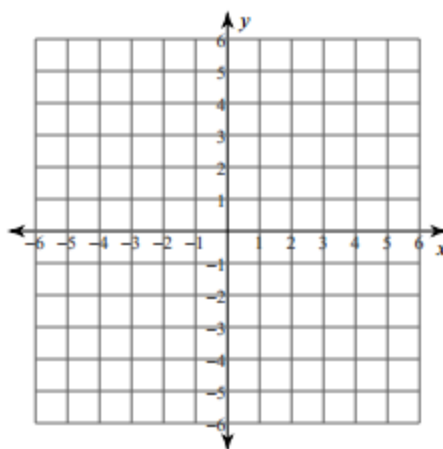
Oct 28-8:22 PM

Homework:

3) $2x + y = 4$
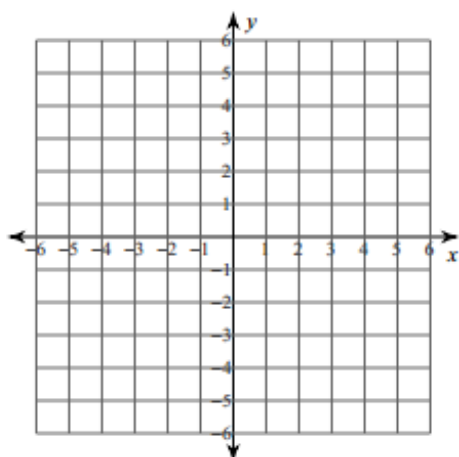
4) $6x + 5y = 20$
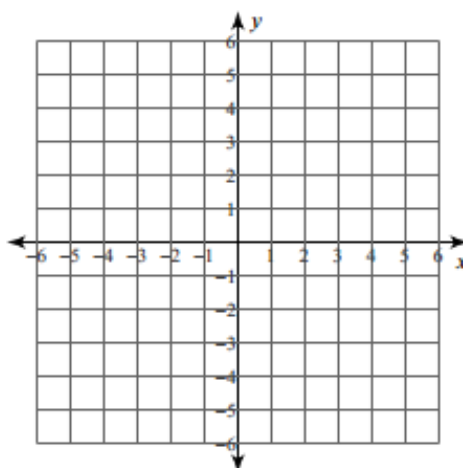
Oct 28-8:22 PM

Warm-Up

Graph:

$$3x + 5y = -5$$
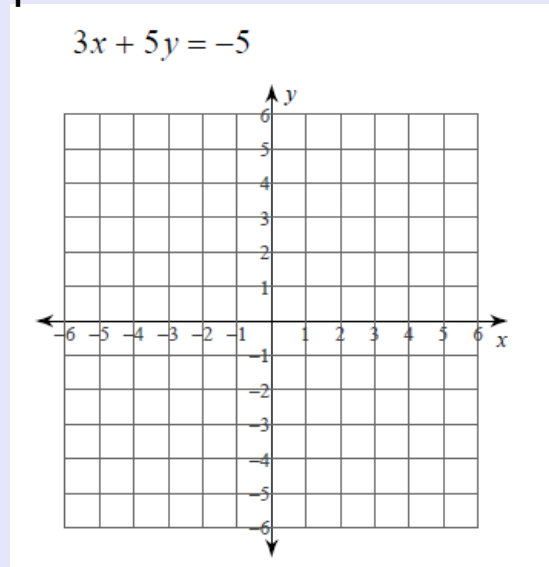
Nov 5-2:44 PM
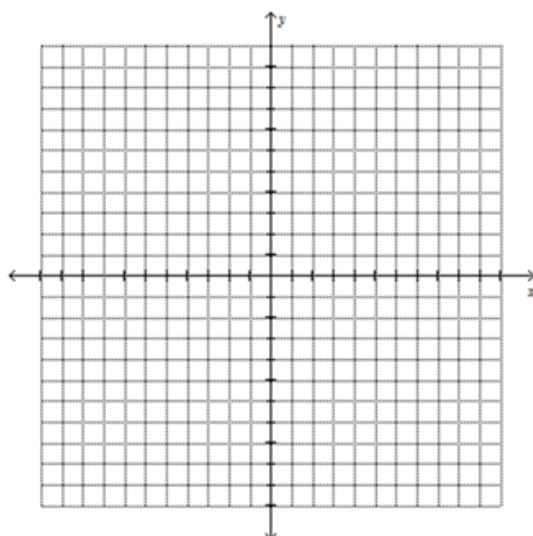
Unit #2: Linear Functions

Lesson:

Graphing Linear

Systems

Next time you're stressed:
take a step back, inhale and laugh.
remember who you are and why you're here.
you're never given anything in this world that
you can't handle. be strong, be flexible,
love yourself, and love others.
always remember, just keep moving forward.

www.dailyinspirationalquotes.in

Nov 5-2:44 PM

I can find the solution to a linear/linear system graphically.

A **system of equations** is a set or collection of 2 or more equations with a set of unknown variables.

In solving a system of equations. we try to find values for each of the unknown variables that will satisfy every equation in the system.

We can solve a system of equation using 4 methods:

1. **Graphically**
2. **Algebraically (Elimination)**
3. **Algebraically (Substitution)**

Dec 5-3:50 PM

I can find the solution to a linear/linear system graphically.

Lets watch our friends from WSHS.
Remember our friends from WSHS???

http://www.youtube.com/watch?v=1qHTmxlaZWQ

Dec 5-3:50 PM

I can find the solution to a linear/linear system graphically.

TODAY, WE WILL DETERMINE:
- HOW MANY SOLUTIONS A SYSTEM OF LINEAR EQUATIONS CAN HAVE
- WHAT THE "SOLUTION" TO A SYSTEM OF LINEAR EQUATIONS REALLY IS

Think about it-What are the different scenarios that can happen when you graph 2 linear equations on the same coordinate axes?

Dec 5-3:50 PM

I know how many solutions we can have to a linear/linear system.

CONCEPT SUMMARY

NUMBER OF SOLUTIONS OF A LINEAR SYSTEM
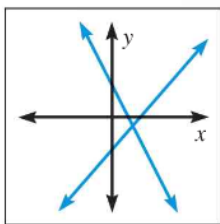
Lines intersect
one solution
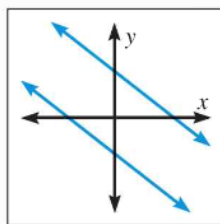
Lines are parallel
no solution
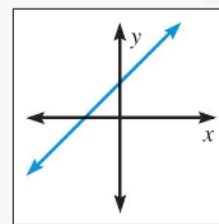
Lines coincide
infinitely many solutions
(the coordinates of every point on the line)

Dec 5-3:50 PM

21

I can find the solution to a linear/linear system graphically.

So basically, when you are asked to find the SOLUTION to a system of equations, you simply FIND THE POINT OF INTERSECTION of the two lines!!!

Now what....
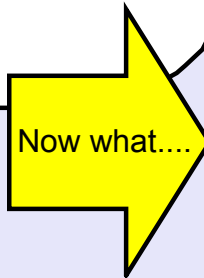
Dec 5-3:50 PM

I can find the solution to a linear/linear system graphically.

Solve the following system of equations GRAPHICALLY:

$$y = \frac{1}{3}x - 3$$

$$y = -x + 1$$
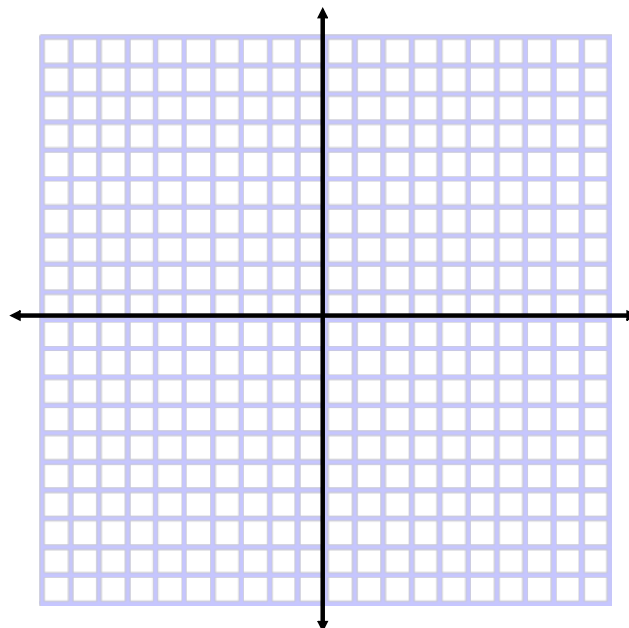
Dec 5-3:50 PM

I can find the solution to a linear/linear system graphically.

Determine by <u>GRAPHING</u> how many solutions there are to the system of equations below.

$$2x + y = 5$$
$$2x + y = 1$$
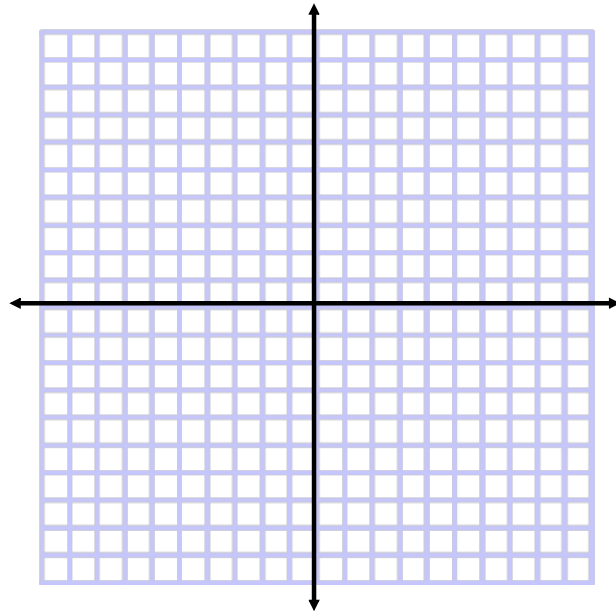
Dec 5-3:50 PM

I can find the solution to a linear/linear system graphically.

Determine by <u>GRAPHING</u> the solution to the system of equations below.

$$3x + y = -1$$
$$9x - 3y = 3$$
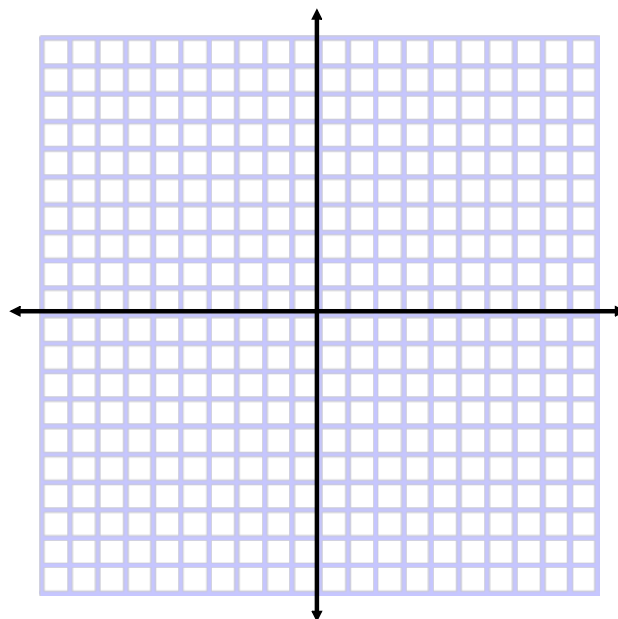
Dec 5-3:50 PM

Unit #2 : Linear Functions

Solving Systems of Equations by Graphing

The only way
to learn
mathematics
is to do
mathematics.

PAUL HALMOS

Dec 5-3:55 PM

Determine by <u>GRAPHING</u> the solution to the system of equations below. **Check your answer.**

$2x + y = 4$

$4x - 2y = 0$
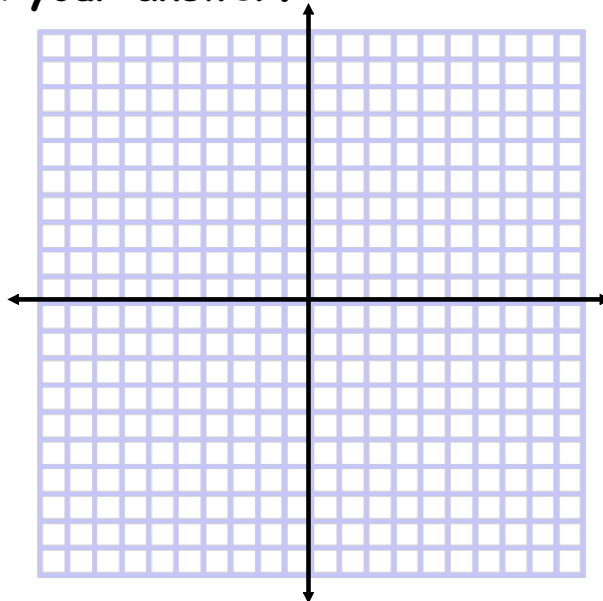
Dec 5-3:55 PM

Solve the following system of equations GRAPHICALLY:

$$2y + 4 = -x$$

$$y - 2 = -\frac{3}{2}x$$
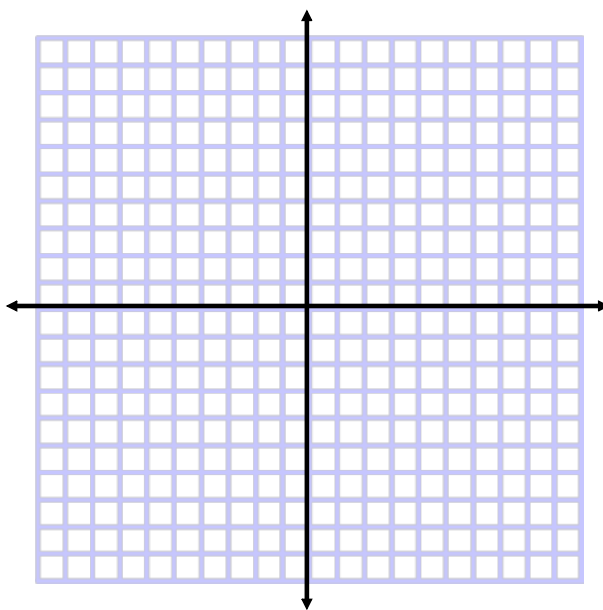
Dec 5-3:55 PM

Solve the following system of equations GRAPHICALLY:

$$5x + 3y = 12$$

$$-x + 3y = -6$$
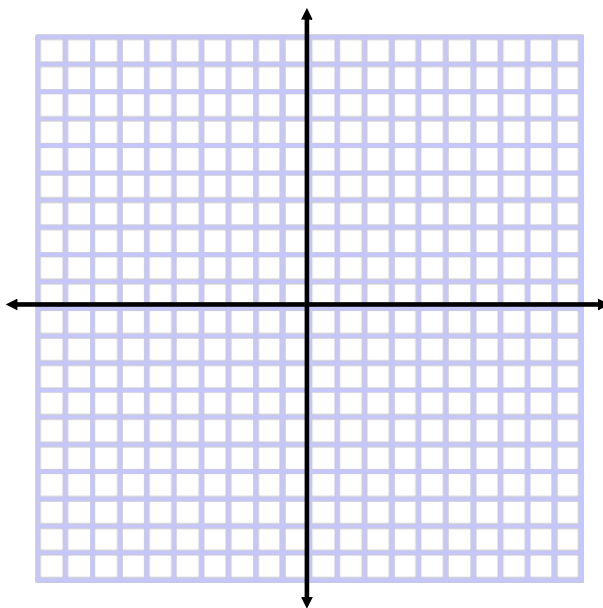
Dec 5-3:55 PM

Solve the following system of equations GRAPHICALLY:

$$3y - x = -1$$

$$y + x = 1$$
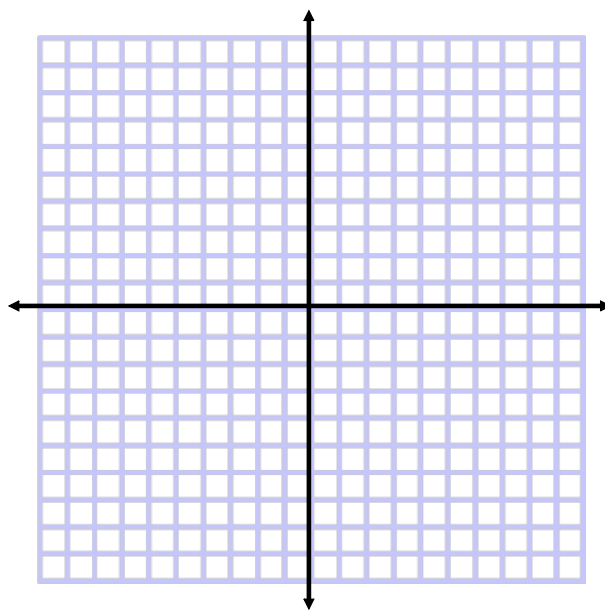
Dec 5-3:55 PM

Solve the following system of equations GRAPHICALLY:

$$2y = -3x + 4$$

$$y = -\tfrac{1}{2}x - 2$$
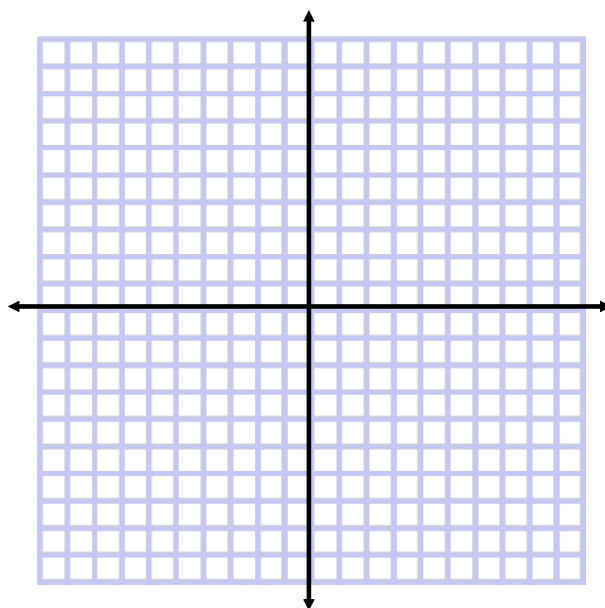
Dec 5-3:55 PM

Solve the following system of equations GRAPHICALLY:

$$4x - 2y = 10$$

$$y = -2x - 1$$
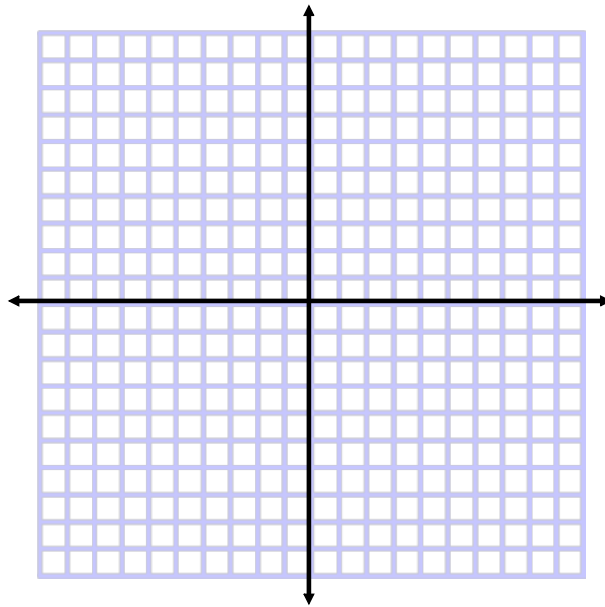
Dec 5-3:55 PM

Unit #2: Linear Functions

Lesson:
Intro to Systems

If you focus on *results,*
you will never change.
If you focus on *change,*
you will get results.

~*Jack Dixon*

RICHMOMBUSINESS.COM
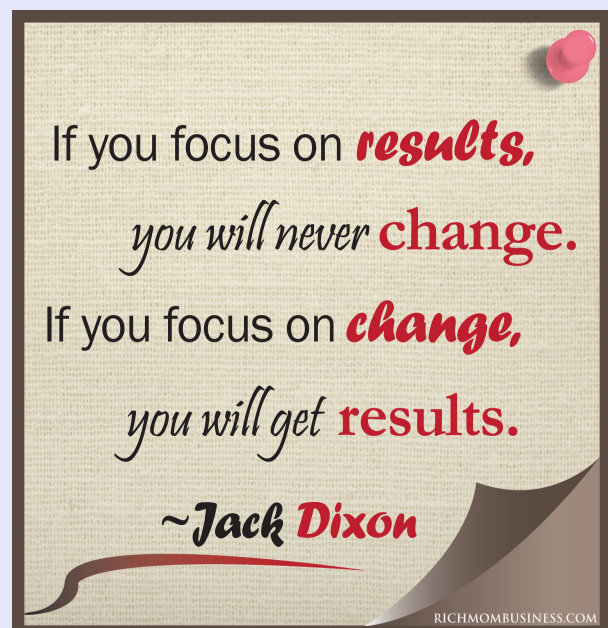
Nov 5-2:31 PM

Do Now: **Solve the following system of equations GRAPHICALLY:**

$$2x - 3y = 12$$

$$y = 4x - 10$$

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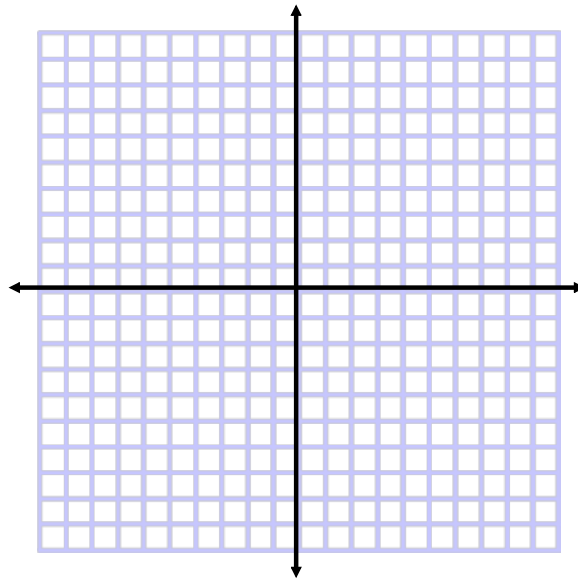
Dec 18-3:19 PM

Unit #2: Linear Functions

Solving Systems Review by Substitution

Math may not teach me how to add love or subtract hate but it gives me hopes that every problem has a solution.

creativeisnumber1.tumblr.

Dec 18-3:19 PM

I can solve Systems Review by Substitution

Solve the following system of equations
ALGEBRAICALLY: $2x - 3y = 12$

$$y = 4x - 10$$

1. **Get both equations in y=mx + b form**
2. **Set equations equal to each other**
3. **Put one side into Y_1 and the other into Y_2**
4. **Zoom 6 (if you can't see the intersection then Zoom 3 enter until you can)**
5. **2nd, Trace, 5, Enter, Enter, Enter**
6. **Write down your answer as a coordinate (x,y)**

Dec 18-3:19 PM

I can solve Systems Review by Substitution

Solve the following system of equations
ALGEBRAICALLY: $y = 6x - 11$

$$-2x - 3y = -7$$

1. **Get both equations in y=mx + b form**
2. **Set equations equal to each other**
3. **Put one side into Y_1 and the other into Y_2**
4. **Zoom 6 (if you can't see the intersection then Zoom 3 enter until you can)**
5. **2nd, Trace, 5, Enter, Enter, Enter**
6. **Write down your answer as a coordinate (x,y)**

Dec 18-3:19 PM

Solve the following system of equations
ALGEBRAICALLY:

$$2x - 3y = -1$$

$$y = x - 1$$

1. Get both equations in y=mx + b form
2. Set equations equal to each other
3. Put one side into Y_1 and the other into Y_2
4. Zoom 6 (if you can't see the intersection then Zoom 3 enter until you can)
5. 2nd, Trace, 5, Enter, Enter, Enter
6. Write down your answer as a coordinate (x,y)

Dec 18-3:19 PM

Solve the following system of equations
ALGEBRAICALLY:

$$y = -3x + 5$$

$$5x - 4y = -3$$

1. Get both equations in y=mx + b form
2. Set equations equal to each other
3. Put one side into Y_1 and the other into Y_2
4. Zoom 6 (if you can't see the intersection then Zoom 3 enter until you can)
5. 2nd, Trace, 5, Enter, Enter, Enter
6. Write down your answer as a coordinate (x,y)

Dec 18-3:19 PM

Warm-Up

Solve this system of equations using substitution. Check.

$$3y - 2x = 11$$

$$y = 9 - 2x$$

Nov 4-8:29 AM

Unit #2: Linear Equations

Lesson:

Systems of Equations

(Elimination)

HARDSHIPS OFTEN
PREPARE ORDINARY
PEOPLE FOR AN
EXTRAORDINARY
DESTINY...

-C.S. LEWIS
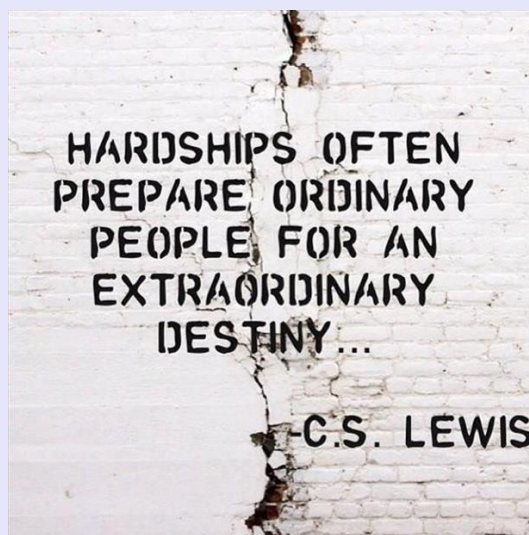
Nov 7-1:58 PM

I can solve systems of equations by elimination.

STEPS:

1) Line up the x's and y's

2) Decide on which variable(x or y) is easier to eliminate

3) In order to eliminate, you must have the same coefficient <u>but</u> opposite sign

4) Solve for the variable you did not eliminate

5) Now go back to one of the original problems and solve for the other variable

Nov 4-8:29 AM

I can solve systems of equations by elimination.

If we add the two equations -- straight down, those **X** critters are going to drop right out!

Just add "like terms" and drag the **"="** down to:

Let's just do one and you'll see how it works:

$$2x + 3y = 20$$
$$-2x + y = 4$$

See how these guys are the same, but with a different sign?

$$2x + 3y = 20$$
$$+ \quad -2x + y = 4$$
$$\overline{0 + 4y = 24}$$
$$4y = 24$$
$$y = 6$$

We've got one of them... Now, we just need to get the **X**. To do this, you can stick the **y** into either of the original equations...

The second equation is easier:

$$y = 6$$
$$-2x + y = 4$$
$$-2x + 6 = 4$$
$$-2x = -2$$
$$x = 1$$

It looks like the answer is **(1, 6)**.

Nov 4-8:29 AM

32

I can solve systems of equations by elimination.

Solve by elimination:

$$7x + 4y = 2$$
$$9x - 4y = 30$$

I can solve systems of equations by elimination.

Solve for x and y:

$$x - 2y = 14$$

$$x + 3y = 9$$

I can solve systems of equations by elimination.

Solve for x and y:

$$x + y = 8$$

$$x - y = 4$$

Nov 4-8:29 AM

I can solve systems of equations by elimination.

Solve for x and y:

$$4x + 3y = -1$$

$$5x + 4y = 1$$

Nov 4-8:29 AM

I can solve systems of equations by elimination.

Solve for x and y:

$$3x + y = 13$$

$$x + 6y = -7$$

Nov 4-8:29 AM

Homework: Solve for x and y		
5x + 4y = -30	3x + y = 13	-3x + 7y = -16
3x - 9y = -18	x + 6 = -7	-9x + 5y = 16

Nov 7-3:49 PM

Warm-Up

Solve for a and b:

$$5a - 2b = 3$$

$$2a - b = 0$$

Nov 7-1:54 PM

Unit #2: Linear Equations

Lesson:

Systems of Equations

(Elimination)

"THE HAPPINESS OF YOUR LIFE DEPENDS UPON THE QUALITY OF YOUR THOUGHTS."
- MARCUS AURELIUS

Nov 7-1:59 PM

I can solve systems of equations by elimination.

Solve for x and y:

$$2x - y = 9$$

$$3x + 4y = -14$$

Nov 4-8:29 AM

I can solve systems of equations by elimination.

Solve for x and y:

$$4x - 3y = 25$$

$$-3x + 8y = 10$$

Nov 4-8:29 AM

I can solve systems of equations by elimination.

With a partner work on the systems of equations worksheet. Hand it in when complete.

Nov 7-4:09 PM

Warm-Up

The equations $5x + 2y = 48$ and $3x + 2y = 32$ represent the money collected from school concert tickets sales during two class periods. If x represents the cost for each adult ticket and y represents the cost for each student ticket, what is the cost for each adult ticket?

Nov 7-4:14 PM

Unit #2: Linear Equations

Lesson:

Systems of Equations

Word Problems

If you don't build your dreams, someone else will hire you to build theirs.

Nov 7-1:55 PM

I can solve systems of equations by elimination.

Matt and Ming are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Matt sold 3 small boxes of oranges and 14 large boxes of oranges for a total of $203. Ming sold 11 small boxes of oranges and 11 large boxes of oranges for a total of $220. Find the cost each of one small box of oranges and one large box of oranges.

  a) Write an equation for Matt

  b) Write an equation for Ming

  c) Now solve for the cost of the small and large boxes of oranges

Nov 7-4:14 PM

I can solve systems of equations by elimination.

The school that Stefan goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of $38. The school took in $52 on the second day by selling 3 senior citizen tickets and 2 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

a) Write an equation for 1st day

b) Write an equation for 2nd day

c) Now solve for the price of one adult and one child tickets

Nov 7-4:14 PM

I can solve systems of equations by elimination.

The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 8 vans and 8 buses with 240 students. High School B rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

Nov 7-4:14 PM

I can solve systems of equations by elimination.

One large pitcher and two small pitchers can hold 8 cups of water. One large pitcher minus one small pitcher constitutes 2 cups of water. How many cups of water can each pitcher hold?

Nov 7-4:14 PM

I can solve systems of equations by elimination.

The admission fee at a small fair is $1.50 for children and $4.00 for adults. On a certain day, 2200 people enter the fair and $5050 is collected. How many children and how many adults attended?

Nov 7-4:14 PM

Homework:

1) Brodie's Gourmet Pretzel Shop specializes in selling the very finest chocolate covered pretzels. Banky bought 4 white chocolate pretzels and 6 dark chocolate pretzels for $10.50. Holden bought 8 white chocolate and 3 dark chocolate pretzels for $9.75.

a) Write a system of equations to represent this situation.

b) Solve your system of equations to find out the cost of each type of

pretzel.

Nov 7-4:28 PM

Homework:

The math club and the science club had fundraisers to buy supplies for a hospice. The math club spent $135 buying six cases of juice and one case of bottled water. The science club spent $110 buying four cases of juice and two cases of bottled water. How much did a case of juice cost? How much did a case of bottled water cost?

Nov 7-4:28 PM

Review

and

Unit # 2 Test

Dear Math,
go buy a
calculator and
solve your own
problems.
I'm a teenager,
not a therapist.

Nov 4-8:30 AM