CORNELL NOTES

AVID Decades of College Dreams

TOPIC/OBJECTIVE: Graphing system of linear inequalities

NAME: Student Sample

CLASS/PERIOD: Alg 1 / Per. 3

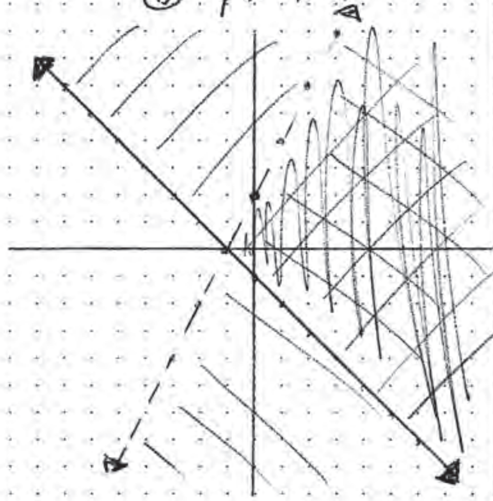
DATE: 3/12

ESSENTIAL QUESTION: What similarities & differences exist between solving systems of linear equations & systems of inequalities?

QUESTIONS:

How does solving
$y < 2x+2$
$y \geq -x-1$
compare/contrast with solving
$y = 2x+2$
$y = -x-1$?

Ex. 1
Ⓐ $y < 2x+2$
Ⓑ $y \geq -x-1$



① Graph the 2 lines
* remember to dot $>$ or $<$

② Test points in equations
* (0,0) easy to test

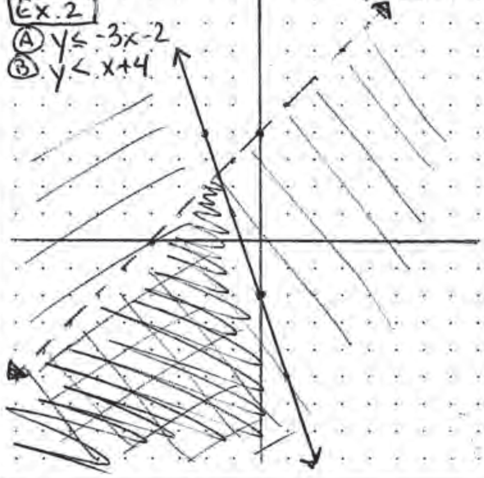
Ⓐ (0,0)	(0,0)
$y < 2x+2$	$y \geq -x-1$
$0 < 2(0)+2$	$0 \geq -0-1$
$0 < 2$	$0 \geq -1$
True	True

③ shade true areas

④ Darkly shade overlap

same	Diff
· Graph the same	· inequalities have shaded regions of solutions · solutions may not be on the line

Ex. 2
Ⓐ $y \leq -3x-2$
Ⓑ $y < x+4$



① Graph the 2 lines

② Test 2 points in equations

(0,0)	0,0
Ⓐ $0 \leq -3(0)-2$	Ⓑ $0 < 0+4$
$0 \leq 0-2$	$0 < 4$
$0 \leq -2$	
False	True

③ If false shade opposite area

④ Darkly shade overlap

SUMMARY:

QUESTIONS:

Apply the process for graphing 2 inequalities onto

$y < \frac{1}{3}x + 5$

$y \geq -2x$

$x < 3$

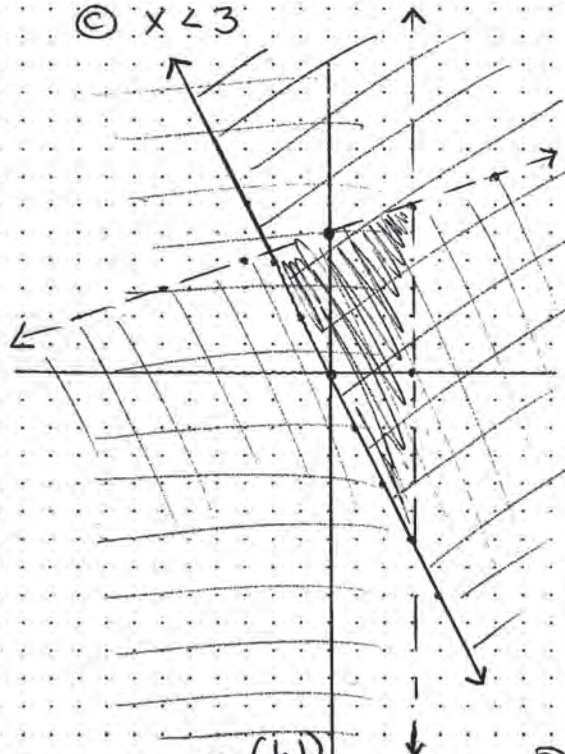
NOTES:

Ex. 3

Ⓐ $y < \frac{1}{3}x + 5$

Ⓑ $y \geq -2x$

Ⓒ $x < 3$



① Graph the 3 equations.

② Test points in each equation

*if line passes through ~~another point~~ (0,0) use another point

Ⓐ (0,0)

$y < \frac{1}{3}x + 5$

$0 < \frac{1}{3}(0) + 5$

$0 < 5$

True

Ⓑ (1,1)

$y \geq -2x$

$1 \geq -2(1)$

$1 \geq -2$

True

Ⓒ (0,0)

$0 < 3$

True

SUMMARY: The basics of graphing inequalities are the same as graphing equations. You start at the y-intercept & use slope. Make sure to check if the line is dotted or solid. You also need to test a point to shade.

CORNELL NOTES	TOPIC/OBJECTIVE:	NAME:
AVID Decades of College Dreams	Solving multi-step equations	Student B
		CLASS/PERIOD: Algebra I (Per. 5)
		DATE: 10/11

ESSENTIAL QUESTION: How can we combine our knowledge of x, ÷, +, - with our distributive & combining term skills to solve multiple step equations?

QUESTIONS:

Apply the process for solving $9x-4x-6=19$ onto $5p+3(2p+1)=25$

Ex 1

$9x-4x-6=19$ ① Combine terms

$5x-6=19$ ② Isolate x by adding

$+6 \quad +6$

$\frac{5x}{5}=\frac{25}{5}$ ③ Divide by coefficient

$x=5$ ④ Check your answer

check

$9(5)-4(5)-6=19$

$45-20-6=19$

$25-6=19$

$19 \checkmark 19$

$5p+3(2p+1)=25$ would 1st require you to distribute. Also we would need to isolate x by subtracting since it is $5p+6p+3=25$

Ex. 2

$5p+3(2p+1)=25$ ① Distribute

$5p+6p+3=25$ ② Combine terms

$11p+3=25$ ③ Isolate variable by +/-

$-3 \quad -3$

$\frac{11p}{11}=\frac{22}{11}$ ④ ÷ by coefficient

$p=2$ ⑤ check answer

check

$5(2)+3(2(2)+1)=25$

$10+3(4+1)=25$

$10+3(5)=25$

$10+15=25$

$25 \checkmark 25$

Ex. 3

$2(2m+4)-(2m-3)=17$ ① Distribute (x2)

$4m+8-2m+3=17$ ② combine terms

$2m+11=17$ ③ Isolate variables by +/-

$-11 \quad -11$

$\frac{2m}{2}=\frac{6}{2}$ ④ ÷ by coeff.

$m=3$ ⑤ check answer

Check

$2(2(3)+4)-(2(3)-3)=17$

$2(6+4)-(6-3)=17$

$2(10)-(3)=17$

$20-3=17$

$17 \checkmark 17$

SUMMARY: Having parenthesis in an equation will require you to distribute as the first step. After that the combining terms, isolating variables, and dividing by coefficients are the same. Although I need to be careful about isolating by + or −.

Cornell Notes	Topic/Objective:	Name:
AVID Decades *of* College Dreams	Solving Systems of Equations (SoE)	Class/Period: Alg. 1, 2°
		Date: Oct. 12, 2009

Essential Question: How do you solve (SoE) by substitution? → solution will be an ordered pair like (3,2)

Questions:	Notes
What is a system of linear eq.?	System of Linear equations (SoE) - 2 or more linear equations in the same variables.
What are the steps to solving SoE by sub.?	Steps to Solving by sub.:
	1. Solve 1 eq for its variable. If possible, Solve for variable w/ coeff. of 1 or -1.
	2. Sub the expression from Step 1 into other eq.
	3. Solve that eq. to get value of 1st var.
	4. Sub value of 1st var. into original eq. & solve for 2nd var.
	5. Write the values from #3 & #4 as an ordered pair.
	6. Check ?
	Ex. Solve
	$y = 3x + 2$ (Eq. #1)
	$x + 2y = 11$ (Eq. #2)
	Step 1 $y = 3x + 2$ ← Eq. 1 already solved for y.
	$x + 2y = 11$

Summary:

Questions:

How do I apply the steps of solving (SoE) to the (SoE)

$y = 3x + 2$

$x + 2y = 11$

Notes:

Step 2

$y = 3x + 2$

$x + 2y = 11$

$x + 2(3x+2) = 11$

Sub. 3x+2 for y in 2nd eq.

Simplify (Use Dist.) (Collect terms)

Step 3

$x + 6x + 4 = 11$

$7x + 4 = 11$

$-4 \quad -4$

$\frac{7x}{7} = \frac{7}{7}$

$x = 1$

Subtract 4 from both sides

÷ by 7

to isolate the variable

Step 4

$y = 3x + 2$

$y = 3(1) + 2$

$y = 3 + 2$

$y = 5$

Write 1st eq.

Sub. 1 for x

Simplify for y

Step 5

$(1, 5)$

Write SoE as ordered pair

* Check: ?

Eq. 1

$y = 3x + 2$

$5 = 3(1) + 2$

$5 = 3 + 2$

$5 = 5$ ✓

Eq. 2

$x + 2y = 11$

$1 + 2(5) = 11$

$1 + 10 = 11$

$11 = 11$ ✓

On my test, do I need to check my answers in both equations? or just one?

Summary:

Questions:	Notes:
How do I apply the process for solving $y = 3x + 2$, $x + 2y = 11$ to the (SoE) $y = 2x + 1$, $2y - x = 11$? How is solving SoE using sub diff. than graphing?	Step 1: $y = 2x + 1$; $2y - x = 11$ · Step 2: $2(2x+1) - x = 11$ · Step 3: $4x + 2 - x = 11$; $3x + 2 = 11$; $-2 \quad -2$; $\frac{3x}{3} = \frac{9}{3}$; $x = 3$ · Step 4: $y = 2(3) + 1$; $y = 6 + 1$; $y = 7$ · Step 5: $(3, 7)$ - ordered pair · Step 5 Check: Eq. 1: $7 = 2x + 1$; $7 = 2(3) + 1$; $7 = 6 + 1$; $7 = 7$ ✓ · Eq. 2: $2y - x = 11$; $2(7) - 3 = 11$; $14 - 3 = 11$; $11 = 11$ ✓ · (same process for both SoE) · Graphing not good for getting an exact intersection point. · Substitution - get an ordered pair.

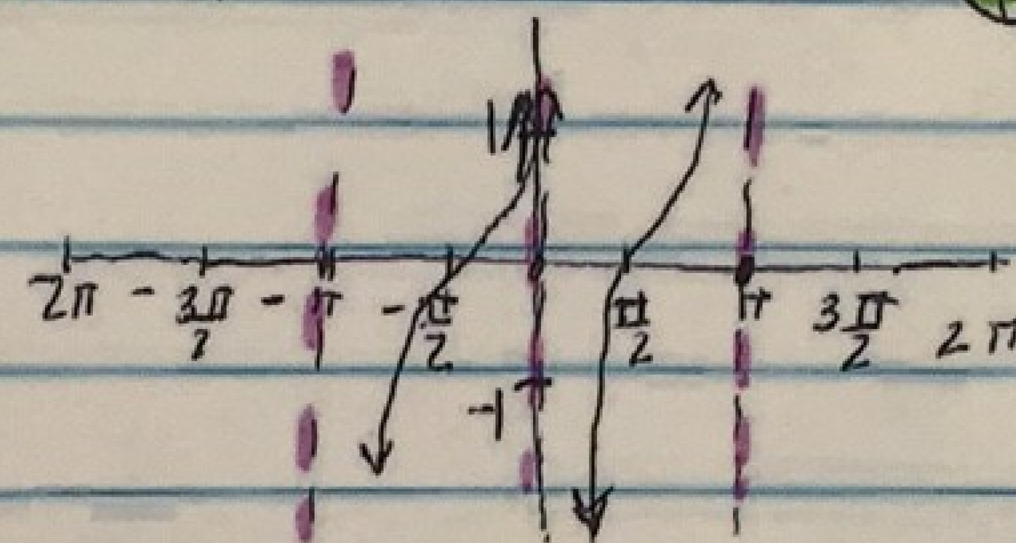
Summary: a system of linear equations is two or more linear equations with the same variables. The sub. method has you isolate one variable in an equation and plug it into the other equation. Following these five steps and checking my answer will ensure the my ordered pair is the correct solution.

Guerrero
Trig p 3
29 Oct 2014

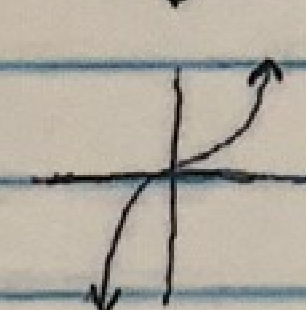
Graphing Trig Functions

How can I successfully graph all six trigonometric functions?

Questions	Notes
Determine how to graph the function if there is a phase shift?	Graph: $y = \tan(x + \pi/2)$ A: 1 P: $\left\lvert \frac{\pi}{b} \right\rvert = \pi$ C: $-\pi/2$ ← * phaseshift moves left or right (depending on sign)



parent function of tangent
↓



Questions	Notes
Which formula can I use to identify the vertical asymptotes?	x-intercepts = πn vertical asymptotes = $x = \frac{\pi}{2} + \pi n$ * n represents integer
Determine how to find the key points in graphing for tangent?	Original form of tangent $y = a\tan(bx - c) + d$ * amplitude (a) used to find * period ($\left\lvert \frac{\pi}{b} \right\rvert$) ($b$) * phase shift ($c$) * vertical shift (moves up or dow) (d)

In order to graph a trigonometric function we need to determine if there are phase shifts or vertical shift. If so, determine it there are ... we need to identify them correctly and plot them on the graph. The vertical asymptotes are used to show where the graph is undefined and draw a dotted line, n represents an integer.

CORNELL NOTES

AVID
Decades of College Dreams

TOPIC/OBJECTIVE: Systems of equations

NAME:

CLASS/PERIOD: Algebra 2

DATE: March 26, 2015

ESSENTIAL QUESTION: How can I solve systems of equations?

QUESTIONS:	NOTES:
What is systems of equations?	Systems of Equations – A set or collection of equations that you deal with all together at once. Linear equations (ones that graph as straight lines) are simpler than non-linear equations, and the simplest linear system is one with two equations and two variables.
What are 2 ways to solve it?	1. Substitution $3x + 2y = 12$ with $y = x - 9$ 2. Elimination $4x + 5y = 16$ subtracts $4x + 10y = 160$
Show the steps of solving one? Include numbers	1. Determine if you choose to use substitution or elimination $2x + 4y = -2$ $Y = (x + 8)$ 2. Plug in Y $2x + 4(x - 8) = -2$ 3. Distribute $2x + 4x - 32 = -2$ 4. Combine like terms $6x - 32 = -2$ 5. Get X on one side $6x = 30$ 6. Divide $6/6x = 30/6$ 7. Get X $X = 5$ 8. Plug X in to find Y and solve $2(5) + 4y = -2$

SUMMARY: Systems of equations give 2 equations for us to solve it. There's 2 ways to do it; substitution and elimination. Both will give the same answer. When you know Y, plug it in and use substitution. You can multiply an equation and subtract it from the other, using elimination.

CORNELL NOTES

AVID
Decades of College Dreams

TOPIC/OBJECTIVE: Raising a power to a power

NAME: [redacted]

CLASS/PERIOD: Algebra 2

DATE: 3/27/15

ESSENTIAL QUESTION: How can you raise a power to a power in Math ?

QUESTIONS:	NOTES:
What are the rules ?	★ - Rule 1 : (x^m)^n = x^(m)(n) - Rule 2 : (xy)^m = x^m y^m
What is a Polynomial ?	Polynomial - An expression with many terms
What are the steps ?	outside of the parenthesis 1. Distribute the exponent 2. Multiply the bases (Coefficients) 3. Write down the correct form
How can you tell if you need to raise a power to a power ?	To tell if a problem requires you to raise a power to a power, look for the exponent OUTSIDE of the parenthesis. If it has an exponent, distribute it
Example problems and solve them ?	

8. $(5xy^2)(4x^3y^3)$ $20x^4y^5$	9. $-(9x^2y^4)^2(x^3)^4$ $-(9^2(x^2)^2(y^4)^2)(x^{12})$ $-(81x^4y^8)(x^{12}) = -81x^{16}y^8$
11. $(-6d^2+d)-(d^2+d)$ $-6d^2+d-d^2-d$ $-7d^2$	12. $3xy^9-7x(y^3)^3$ $3xy^9-7xy^9 = -4xy^9$
14. $-5(2x^3d)^2(x^4d)^5$ $-5(2^2(x^3)^2d^2)((x^4)^5d^5)$ $-5(4x^6d^2)(x^{20}d^5)$ $-20x^{26}d^7$	15. $7a^2(3ab^3)(4b)^2$ $7a^2(3ab^3)(16b^2)$ $336a^3b^5$

SUMMARY: The rules of raising a power to a power in Math are : (x^m)^n = x^(m)(n), and (xy)^m = x^m y^m. Polynomials are involved. Fractions and decimals may also have an appearance. The bases are the coefficients. To raise a power to a power, an exponent is needed outside.

CORNELL NOTES

AVID Decades of College Dreams

TOPIC/OBJECTIVE: Factoring Polynomials

NAME:

CLASS/PERIOD: Algebra 1

DATE: 2015 March 23

ESSENTIAL QUESTION: Using your math skills, how would you factor polynomials ?

QUESTIONS:	NOTES:
What is factoring ?	Factoring - The process of separating a polynomial back into a product
Using math terms you use in class, give the definition of a polynomial ?	Polynomial - An expression of more than two Algebraic terms, especially the sum of several terms that contain different powers of the same variables Polynomials that cannot be factored are called Prime
What's GCF ?	GCF - Greatest common factor
Identify the steps taken to solving this problem ?	1. Look at coefficients first 2. A variable must be common to all terms to be a GCF 3. If a variable is common to all terms, take the one with the smallest exponent 4. Divide all terms by the GCF to get remainder in parenthesis
Solve the following problems for practice	$3a^3b^2c - 9a^2b^3c^2 + 15ab^4c^3$ $15a^2b - 30ab$ $8m + 36n$

SUMMARY: When factoring polynomials, you must follow the math rules. Looking at the coefficients, what would be the GCF ? A variable is required to be common to all the terms to be a GCF. The smallest exponent will be used. After these steps, divide all terms by the GCF to get the remainder in parenthesis. These are the steps and process to factoring polynomials.

CORNELL NOTES

AVID
Decades of College Dreams

TOPIC/OBJECTIVE:	Integer
NAME:	
CLASS/PERIOD:	Algebra 2
DATE:	March 25, 2015

ESSENTIAL QUESTION:

How can students successfully use models to (x and /) integers?

QUESTIONS:	NOTES:
Can you identify what is an integer?	★ Integer - Any number, regardless of it's sign. Includes positive and negative #'s
What type of number would be the outcome of a positive times a negative?	If you multiply a positive times a negative number, the result of the problem would be a negative number P(N) = N Ex : 100(-5) = -500 2(-16) = -32
What type of number would be the outcome of a negative times a negative?	If you multiply a negative with a negative, the outcome of the problem would always be a positive number N(N) = P Ex : -6(-13) = 78 -2(-16) = 32
Would the rule apply to others?	★ This rule is valid whenever you deal with multiplying or diving negative numbers with positive or negative Does not work with addition or subtraction

SUMMARY: An Integer is any number, regardless of it's sign. When adding and subtracting integers, you do not follow the rule. However, if you multiply and divide integers, you are required to use the rule. A P(N) = N and a N(N) = P. Use this rule in equations too.

CORNELL NOTES

AVID Decades of College Dreams

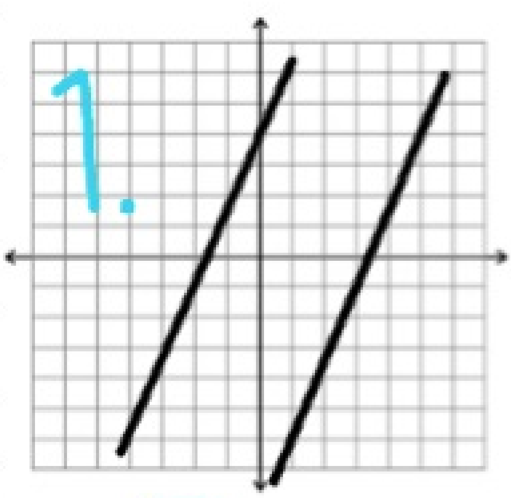
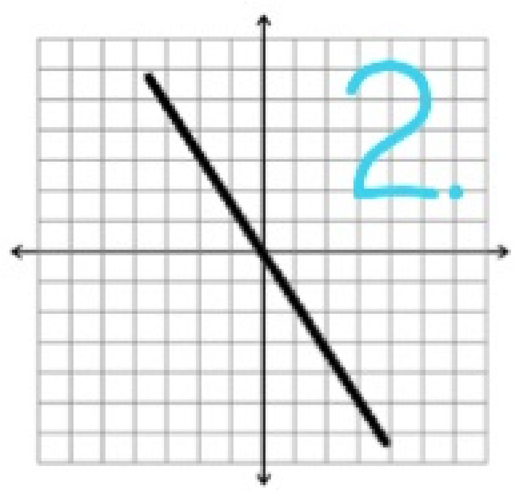
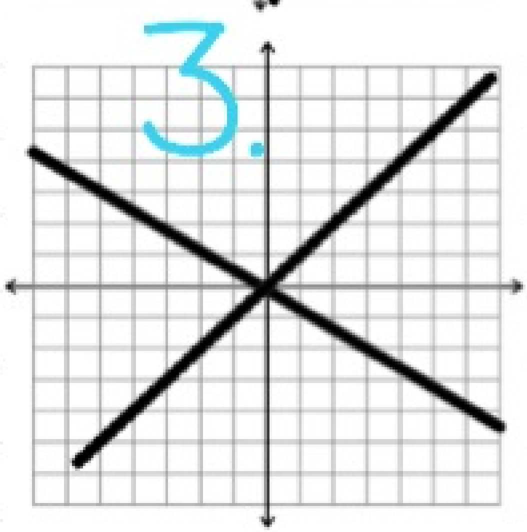
TOPIC/OBJECTIVE: Graphing systems Of equations

NAME:

CLASS/PERIOD: Algebra 2

DATE: 3/27/15

ESSENTIAL QUESTION: Using my knowledge of math, how can I determine the solution to a system of equations?

QUESTIONS:	NOTES:
Explain what it means to solve a system of equations?	Solution to a system is a point (X, Y) that makes both equations true. A point that intersects all lines. Graph the equation. If none / infinite, don't find point. If one, find point.
Depict the diff. solutions of a Graph and explain how they differ from each other?	  
	1. No solution. They never meet at a point
	2. Infinite solution. They are the same
	3. One solution. There is a point where they meet
	Solutions ↖ ← ↙
-Study for quiz 1.29.15	

SUMMARY: To solve a set of equations, you determine the point that makes the Solutions both true. First, you graph the slope-intercept form onto the graph. Second, you determine if they cross each other. Then, you solve if both equations equal each other, to get X. Next, you plug in X to find Y, and you get your point.