Math 11: unit 3.1: Systems of Equations: solve by graphing: linear systems (y=mx+b)

-remember: y=mx+b. Also, m (slope)=

A. What is a system of equations?

B. How to solve it?-look for an ordered pair that satisfies both equations.-look for an intersection of lines.

Ex: y=x+2 and y=-x+8. Graph and find the intersection point.

Problem: even if we use a graphing calculator, it may be ______ to find the ______ ordered pair....so may need to estimate.

Try: solve by graphing 1. y=-x+5 and y=x-7

2) y=2x-3 and y=-x+6

3. WITHOUT graphing, can we <u>predict</u> the <u>number</u> of solutions for a linear system of equations?

If y=mx+b and if m (slope)

Ex:
$$y=2x+6$$

 $y=2x+8$
Ex: $y=-3x+5$
 $2y=-6x+10$
Ex: $y=-2x+4$
 $y=-\frac{1}{2}x+3$

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Do: handout pg 11 #1-24 even, 25-30, 32

Math 11: unit 3.2 - solving by graphing continued - linear quad and quadquad systems system of equations (Chp 4 - Mickelson)

A. Remember, what does 'solving by graphing' mean? -we want to find the intersection points of the equations

Ex: graphically solve: y=x-1 ad y=

B. How to graphically solve systems of linear-quadratic equations? -3 possible solutions:

i.

ii)

iii)

Ex: solve by graphing: y=4x+3 and $y=2x^2+8x+3$

Ex: graphically solve y=x+7 and $y=(x+2)^2+3$

Try: solve by graphing: y=-x+5 and y=

Do: WB pg 113 #1ac, 3 - handout: choose 5

- C) How solve quadratic-quadratic systems of equations? -4 possibilities:
 - i. ii) iii) iv)

Ex: solve by graphing: $y = -5(x-1)^2+5$ and $y=-5(x-2)^2+5$

WB: pg 113 #1df, 4, 5d-f

Math 11 Unit 3.3: solving algebraically

A. What does 'solving algebraically' mean? -before: graphically:

advantage:

disadvantage:

-now: use algebra to find______ that works for the equations in the system.

advantage:

disadvantage:

B. How to do it?

-2 methods:

 Solving by substitution (linear-linear)
 Ex: 3x-2y=-12 x-4y=8

ii) solving by substitution (linear-quadratic) Ex: 5x-y=10 $x^2+x-2y=0$

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iii) solving by substitution: (quadratic-quadratic)
Ex: x^2-2x+3y=9
5x^2-10x+y=0
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-do: Mickelson WB pg 121 #1,2: pick 5 from each optional: handout #9-23 (left column)

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-quiz: solve by graphing and algebraically(substitution)
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Math 11: unit 3.4 - solving by elimination (linear-linear)

A. Why should we solve by elimination, when we already can solve by graphing and substitution?

-substitution is best when:

-if no coefficient = 1 or =-1, then substitution can still work, but very messy..._____ may be easier.

B. How to do it?

ex: 3x + 2y = 195x - 2y = 5

Ex: 3x + 2y = 193x + 5y = 4 C. What if we can't +/- to eliminate because no common coefficients?

-then we ______ to get the LCM for 1 of the variables, then do the same as before.

Ex: 3x+4y=2 4x+2y=8

-but What if it's a rational expression?

-get rid of the fractions by _____ by the _____.
Ex:
$$\frac{x+3}{2} + \frac{y-3}{4} = 1$$
 and

do: handout 38 #1-38(odd),

Math 11: unit 3.5: solving by elimination (quad-quad) and discriminant

-note: can't eliminate _____, so we eliminate _____

Ex: $y=4x^2+8x+4$

 $y = 3x^2 - 2x - 5$

-remember to check your answers!

-can also use quadratic formula to help you solve for x Ex: x²+10x+9 How can we use the discriminant? Β. -remember the discriminant is used to ______ the number of ______. -the discriminant is: if >0, then =0, then if <0, then if

Ex: $x^2+10x+9=0$. Determine the nature of the roots.

-do WB pg 121 #2: choose 5 more handout #1-10(even) and #33-42(your choice of 5)

-next period: quiz on Unit 3 and homework check -pretest/corrections/test