Introduction to Systems of Equations

Agenda

Warm-Up

(Set up unit 4)

Notes p. 47-48

HW: Practice #1-7

Reminders

Hw 2.5 (not including last page!) due Friday!

Essential Question

How can I find if a point is a solution to a system?

Warm-Up Wednesday

In your notebook: Set up Unit 4!!

Next right hand side blank page (45) is Table of Contents.

Back of that is (p.46) vocabulary.

"4" tab goes on page 45!

On page 45 and 46 set up unit 4 in your notebook.

ToC should go on a RIGHT HAND PAGE

~~Put your "4" tab on page 45(fold along the dotted line)~~

45

UNIT 4

TITLE: Systems

Page #	Page Title
46	Words Worth Knowing
47	Types of Systems
48	Intro to Systems

On page 45 and 46, set up unit 4 in your notebook.

Put your "4" tab on page 45(fold along the dotted line)

46

Unit 4 Words Worth Knowing

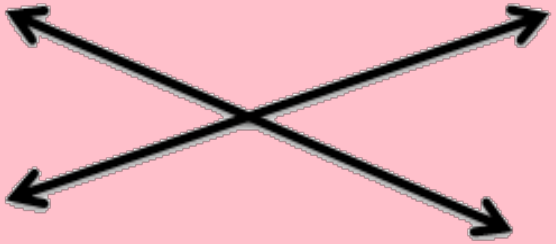
Unit 4: Systems of Linear Equations

- ☐ Expression
- ☐ Equation
- ☐ Variable
- ☐ Constant
- ☐ Coefficient
- ☐ System of Equations
- ☐ Solution to a System
- ☐ Let Statement
- ☐ Intersecting
- ☐ Coincident
- ☐ Parallel
- ☐ No solution
- ☐ Infinite Solutions
- ☐ Graphing
- ☐ Substitution
- ☐ Elimination
- ☐ System of Inequalities
- ☐ Solution Set

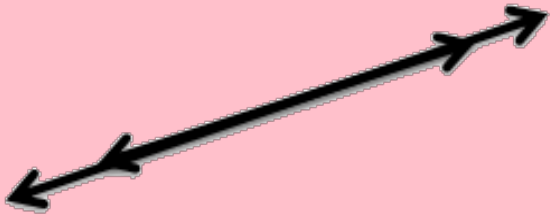
Fold blue paper in half. Cut along the dotted lines and cut off the top flap (with an X). Glue onto page 47.

Types of Systems

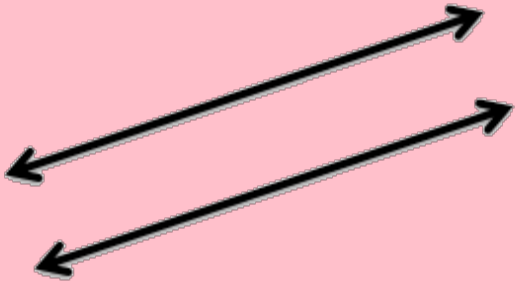
Solve BOTH equations for y and compare the slopes



Intersecting



Coincident (same)



Parallel

Fold blue paper in half. Cut along the dotted lines and cut off the top flap (with an X). Glue onto page 47.

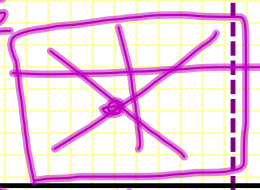
Types of Systems

Solve BOTH equations for y and compare the slopes

$y = 2x$ m=2

$y = -\frac{1}{2}x - 3$ m= $-\frac{1}{2}$

diff. slopes



one solution

ONE solution (where lines cross)

solve for y. ① $2x+4y=8$ $-2x$ $-2x$

$2x + 4y = 8$

$8y = 16 - 4x$

$\frac{4y}{4} = \frac{-2x+8}{4}$

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

$y = -\frac{1}{2}x + 2$ ← → $y = -\frac{1}{2}x + 2$

same line!

infinite

Infinite solutions (lines always touch)

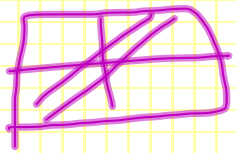
no solution

$y = 2x - 1$

$2y = 4x + 3$

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

slopes same!



NO solution (lines never touch)

Systems of Equations p. 48

Essential Question How can I find if a point is a solution to a system?

System of Equations:

a set of 2 linear equations that have the same 2 variables

A Solution to a System of Equations:

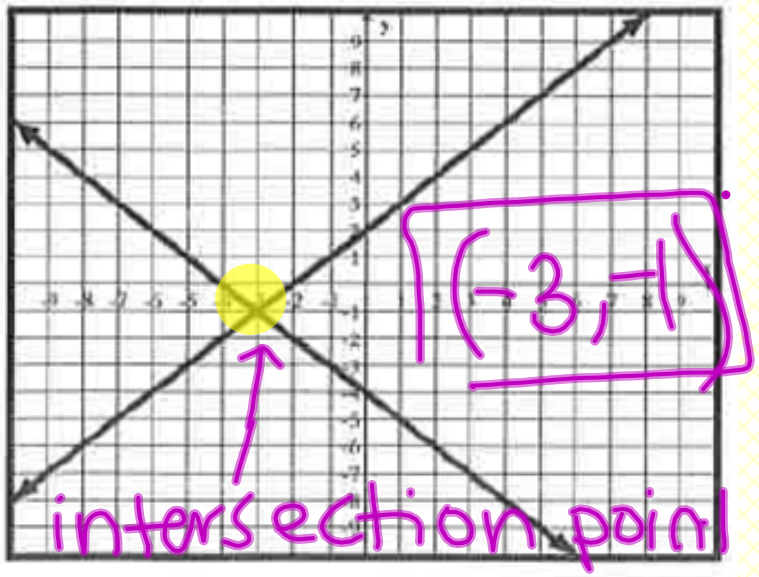
where the lines intersect or the point that satisfies BOTH equations

Systems of Equations p. 48

Essential Question How can I find if a point is a solution to a system?

Determine the solutions to the following systems of equations

1.



Solution is an ordered pair (x,y)

2.

x	y
-6	-6
-2	-4
2	-2
6	0
10	2

x	y
-6	-12
-4	-8
-2	-4
0	0
2	4

(-2,-4)

Systems of Equations p. 48

Essential Question How can I find if a point is a solution to a system?

Determine if the point given is a solution to the system of equations

(x, y) Plug in (x, y) to both equations.

3. (5, 2) yes no

① $\frac{2}{5}x - y = 0$

② $3x - y = 13$

① $\frac{2}{5}(5) - 2 = 0$?

$2 - 2 = 0$ ✓

$0 = 0$

② $3(5) - 2 = 13$?

$13 = 13$ ✓

2 ✓'s → Yes

4. (-2, 2) yes no

① $x + 3y = 4$

② $-x + y = 2$

① $-2 + 2(2) = 4$?

$4 = 4$ ✓

② $-(-2) + 2 = 2$?

$2 + 2 = 2$

$4 \neq 2$

1 X → NO

5. (3, 6) yes no

① $y + 3x = 9$

$y = 2x$

① $6 + 3(3) = 9$?

$15 \neq 9$

Algebra I – Unit 6: Topic 1 – Intro to Systems

Practice – Intro to Systems **No textbook correlation**

Name _____ Date _____ Period _____

Determine if the given point is a solution to the equation. plug into both

1. $(-3, 6)$ $2x - y = -12$, $3x + 2y = -3$

2. $(-1, -4)$ $3y = x - 11$, $-2x + y = -2$

3. $(4, 1)$ $x + 2y = 6$, $x - y = 3$

4. $(2, 1)$ $2x - 5y = -1$, $3x - 4y = -2$

Determine the number of solutions for each system. Write "one", "none" or "infinite". solve for y → look @ calc.

5. $y = \frac{2}{3}x - 5$, $3y = 2x$

6. $3x + y = 3$, $2y = -6x + 6$

7. $x + 2y = 5$, $2x + 4y = 2$

Systems of Equations HW Help

#1-4. Plug in each point (x , y). Does it make a true statement? YOU MUST SHOW WORK!!

1. No 2. Yes 3. Yes 4. No

#5-7. Solve all equations for y, then plug into your calculator OR find the slope (the number next to x). YOU MUST SHOW WORK!!

5. None

6. Infinite

7. None

Need more help? Drop by tutoring!!