October 15, 2018, Monday

$y = mx + b$ (slope, y-intercept)

Find the y-intercept (b) and the slope (m) of the following lines.

1) $2x = y + 2$

$-2 \quad -2$

$2x - 2 = y$

$y = 2x - 2$

$b = -2$

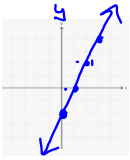
$m = \frac{2}{1}$

2) $y = -3x - 2$

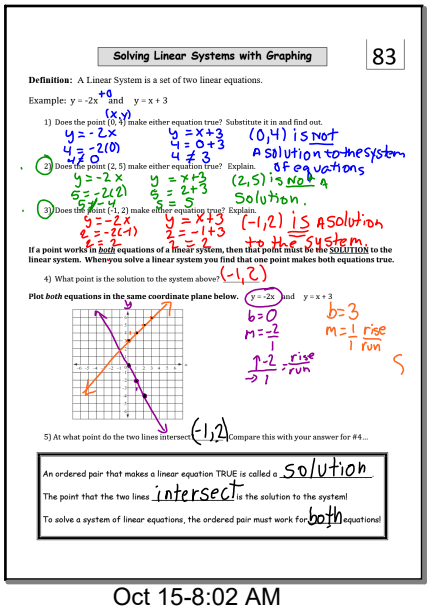
$b = -2$

$m = \frac{-3}{1}$

Choose 1 of the lines to graph.



Oct 11-1:39 PM



Solving Linear Systems with Graphing 83

Definition: A Linear System is a set of two linear equations.

Example: $y = -2x + 0$ and $y = x + 3$ (x, y)

1) Does the point (0, 4) make either equation true? Substitute it in and find out.

$y = -2x$: $4 = -2(0)$, $4 \neq 0$ — $y = x + 3$: $4 = 0 + 3$, $4 \neq 3$ — (0,4) is not a solution to the system of equations

2) Does the point (2, 5) make either equation true? Explain.

$y = -2x$: $5 = -2(2)$, $5 \neq -4$ — $y = x + 3$: $5 = 2 + 3$, $5 = 5$ — (2,5) is not a solution.

3) Does the point (-1, 2) make either equation true? Explain.

$y = -2x$: $2 = -2(-1)$, $2 = 2$ — $y = x + 3$: $2 = -1 + 3$, $2 = 2$ — (-1,2) is a solution to the system.

If a point works in *both* equations of a linear system, then that point must be the SOLUTION to the linear system. When you solve a linear system you find that one point makes both equations true.

4) What point is the solution to the system above? (-1, 2)

Plot *both* equations in the same coordinate plane below. $y = -2x$ and $y = x + 3$

$y = -2x$: $b = 0$, $m = \frac{-2}{1}$, $\frac{-2}{1} = \frac{\text{rise}}{\text{run}}$ — $y = x + 3$: $b = 3$, $m = \frac{1}{1}$ rise / run

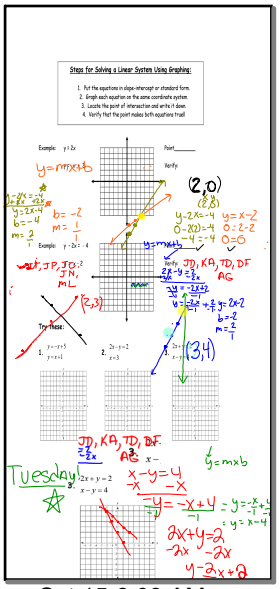
5) At what point do the two lines intersect? (-1, 2) Compare this with your answer for #4...

An ordered pair that makes a linear equation TRUE is called a solution

The point that the two lines intersect is the solution to the system!

To solve a system of linear equations, the ordered pair must work for both equations!

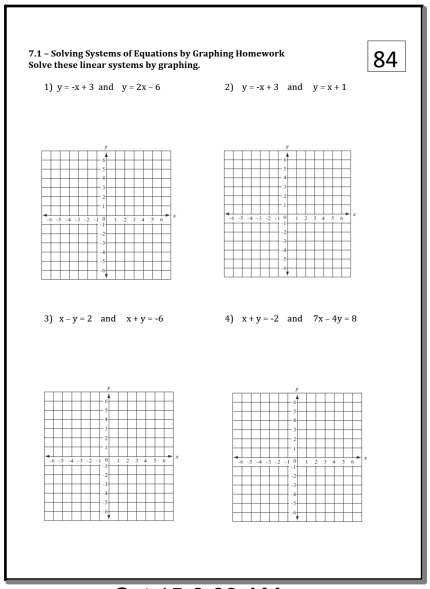
Oct 15-8:02 AM



Steps for Solving a Linear System Using Graphing:

1. Put the equations in slope-intercept or standard form.
2. Graph each equation on the same coordinate system.
3. Locate the point of intersection and write it down.
4. Verify that the point makes both equations true!

Oct 15-8:03 AM



7.1 – Solving Systems of Equations by Graphing Homework 84

Solve these linear systems by graphing.

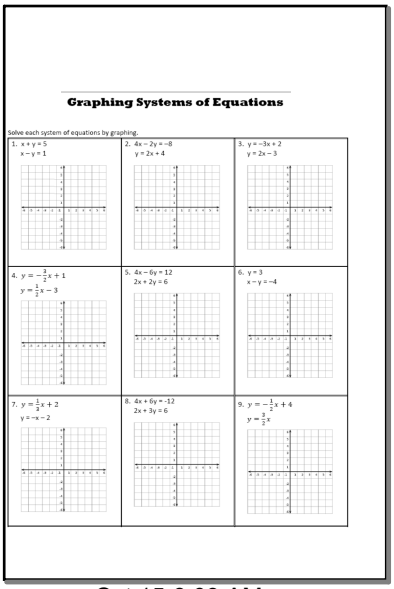
1) $y = -x + 3$ and $y = 2x - 6$

2) $y = -x + 3$ and $y = x + 1$

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

4) $x + y = -2$ and $7x - 4y = 8$

Oct 15-8:03 AM

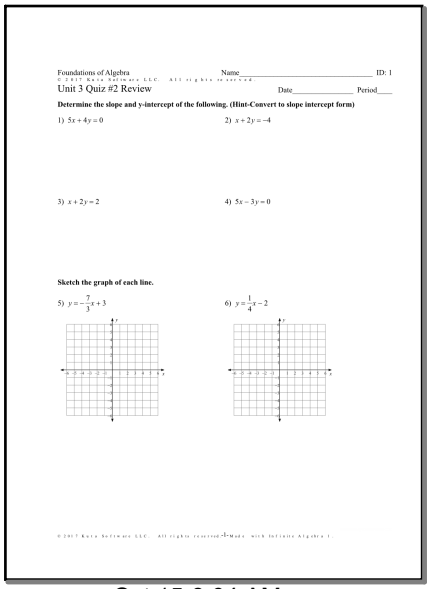


Graphing Systems of Equations

Solve each system of equations by graphing.

1. $x + y = 5$, $x - y = 1$
2. $4x - 2y = -8$, $y = 2x + 4$
3. $y = -3x + 2$, $y = 2x - 3$
4. $y = -\frac{2}{3}x + 1$, $y = \frac{1}{2}x - 3$
5. $4x - 6y = 12$, $2x + 2y = 6$
6. $y = 3$, $x - y = -4$
7. $y = \frac{1}{2}x + 2$, $y = -x - 2$
8. $4x + 6y = -12$, $2x + 3y = 6$
9. $y = -\frac{1}{2}x + 4$, $y = \frac{2}{3}x$

Oct 15-8:03 AM



Foundations of Algebra Name ID: 1

Unit 3 Quiz #2 Review Date Period

Determine the slope and y-intercept of the following. (Hint-Convert to slope intercept form)

1) $5x + 4y = 0$

2) $x + 2y = -4$

3) $x + 2y = 2$

4) $5x - 3y = 0$

Sketch the graph of each line.

5) $y = -\frac{7}{3}x + 3$

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

Oct 15-8:04 AM

7) $x - 3y = 9$

8) $7x - 2y = -4$

Solve each system by graphing.

9) $y = \frac{7}{2}x + 3$
$y = \frac{1}{2}x - 3$

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

 Made with Infinite Algebra 1.

Oct 15-8:04 AM

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Name:_____ Date:_____

Unit 3 Test Review

Simplify the following fractional operations:

$\frac{11}{8} + \frac{7}{6}$	$\frac{5}{8} + \frac{7}{2}$
$\frac{5}{3} - \frac{3}{5}$	$2 - \frac{1}{2}$
$\frac{3}{2} \cdot \frac{11}{8}$	$\frac{9}{5} \div 7$
$\frac{7}{4} \div \frac{1}{3}$	$\frac{1}{4} \div 2$

Equation	Steps
3(x-4)= 42	Given

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Jennifer is a college student who works two jobs after school and on weekends trying to make some extra spending money and to help pay for her tuition. At Job A, she gets $9 an hour, and at job B, she gets $11 an hour.

1. If Jennifer only works at Job A, a. Write an equation for her total income I for working a hours.

b. How much will she make if she works 15 hours in the week? Justify your answer.

c. If she wants to make $153 dollars per week, how many hours would she have to work? Justify your answer.

2. If Jennifer only works at Job B, a. Write an equation for her total income I for working b hours.

b. How much will she make if she works 15 hours in the week? Justify your answer.

c. If she wants to make $341 dollars per week, how many hours would she have to work? Justify your answer.

3. If Jennifer works at both Job A and Job B during the week,

a. Write an equation for her total income for working a hours at Job A and b hours at Job B.

b. How much will she make if she works 12 hours at each job during the week. Justify your answer.

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Convert the following to slope-intercept form and identify the slope and y-intercept:

$2x + 5y = -25$ $-4x - y = 9$

m= m=

b= b=

Graph the following linear equations:

$2x + 5y = 10$ $9x - 2y = 8$

Solve each system of Linear Equations by Graphing:

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

$3x - 2y = 8$
$2x + y = 3$

October 16, 2018, Tuesday

test!

Oct 11-1:39 PM

October 17, 2018, Wednesday

Oct 11-2:05 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Notes/Practice
Name: _____ Date: _____

Day 1 – Combining Like Terms

Conditions for Combining Like Terms:
1) The terms must have the same _____.
2) Variables must have the same _____.

Simplify each expression:

1. $-5n-2-6$
2. $8-6x+1+3x$
3. $5x-2(5+8x)$
4. $7(r+2)+8r$
5. $-2b-6(7b-2)$
6. $6b(1+3b)-2(-4b-3)$
7. $-7x(-7x+1)+x(1-3x)$
8. $-2y(-4y+1)-5(2-3y)$
9. $5x(y-8)-8y(x-3)$
10. $-3x(x-5)+5(x+5)$

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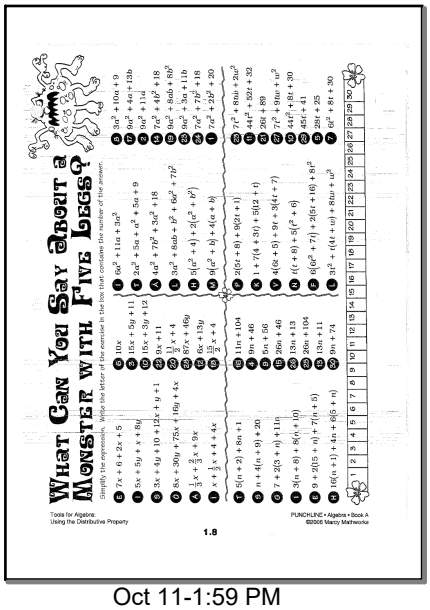


Oct 11-1:59 PM

October 18, 2018, Thursday

Oct 11-2:00 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Notes
Name _____ Date _____

Day 2 – Function Notation and Evaluating Functions (Graphs)

Terms to Know:

- Relation: Any set of _____ that have _____.
- Function: A _____ such that every single _____ has exactly _____ output.
- Domain: All the possible input values (_____ - coordinates).
- Range: All the possible output values (_____ - coordinates).

The notation of a function is important in higher mathematics, such as calculus, and in other areas that use mathematics, such as physics.

Here are a few examples:

- **Example 1:** Input the number of seconds after the starting gun in a race to get an output of the number of meters the runner has covered.

Race Chart

Number of Seconds (input)	1	4	7	8
Meters Covered (output)	5	20	35	40

Domain:
Range:

- **Example 2:** Observe the function $y = x - 6$, where x is the place holder (also called a _____) for the input and y is the place holder for the output.

Function: $y = x - 6$

x (input)	-3	0	7	8
y (output)	-9	-6	1	2

Domain:
Range:

- The rule about only **one output** each time is crucial and must not be violated.

Not a Function

input	3	2	0	3
output	4	-1	2	-3

Why is this not a function? _____

Oct 11-2:01 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Notes

How do I determine if a relation is a function?

- Each input must have _____ output.
- Look at the graph...The vertical line test: **No** vertical line can pass through _____ points on the graph.

Examples: Are these relations functions?

1. $\{(3,2),(4,3),(5,4),(6,5)\}$
2. 
3. 
4. 

Function Notation:

- Function notation is _____.
- f(x) is a fancy way of writing _____ in an _____. It is pronounced _____.
  - Example: $f(x) = 2x + 4$ is the same as $y = 2x + 4$

Function Notation	x-y Notation
$f(x) = 5x + 2$	
	$y = -3x - 7$

Evaluation Functions:

- Evaluate $f(x) = x^2 - 2x + 3$, when $x = -3$ and $x = 4$.

Oct 11-2:01 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Practice
Name: _____ Date: _____

Day 2 – Function Notation and Evaluating Functions (Graphs)

Decide whether the graph represents y as a function of x. Explain your reasoning.

1. 
2. 
3. 

Decide whether the relation is a function.
If it is a function, give the domain and the range.

4. 
5. 
6. 

Evaluate the function when $x = 3$, $x = 0$, and $x = -2$.

7. $f(x) = 2x - 5$
8. $h(x) = 6x + 2$
9. $g(x) = 2.4x$
10. $f(x) = 0.5x + 12$
11. $h(x) = \frac{2}{3}x - 1$
12. $f(x) = \frac{3}{5}x + 2$

Oct 11-2:02 PM

October 19, 2018, Friday

Oct 11-2:02 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Notes/Practice

Name: _____ Date: _____

Day 3 - Evaluating Functions and Simplifying Expressions

Use the following functions to find the given value:

$f(x) = x + 2$ $g(x) = \frac{1}{2}x + 1$ $h(x) = 2x^2 - 3$ $k(x) = 3 - x$

1. $f(2) =$ _____
2. $g(4) =$ _____
3. $f(-6) =$ _____
4. $k(5) =$ _____
5. $h(2) =$ _____
6. $g(6) =$ _____
7. $h(-3) =$ _____
8. $k(-4) =$ _____

Simplify each expression.

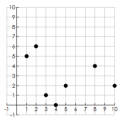
9. $-6(1+3x) - 2x(-3x+2)$
10. $3x(y-4) - 5x(-7x+y)$
11. $-6x^2(6x-1) - 8x(1+8x)$
12. $-7(y^2+7) + 2y(8y^2+1)$
13. $2x(x^4+11x^3-9x-3)$
14. $-3x^2(2y-4x) + 5x^2(1-8x)$

Oct 11-2:03 PM

Foundations of Algebra Unit 4 – Characteristics of Linear Equations Notes/Practice

Find the indicated values by using the graph.

1. $h(2) =$ _____
2. $h(4) =$ _____
3. $h(1) =$ _____
4. $h(5) =$ _____
5. $h($_____$) = 4$
6. $h($_____$) = 1$
7. *What are the values for* $h($_____$) = 2$?



Find the indicated values by using the table.

8. $g(10) =$ _____
9. $g(22) =$ _____
10. $g(0) =$ _____
11. $g(28) =$ _____
12. $g($_____$) = 21$
13. $g($_____$) = 33$

x	g(x) = 2x + 1
0	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	
22	
24	
26	

Simplify each expression.

14. $2(4x^2-8) - 3x(-3x+2)$
15. $3x(x-6) - 8(7x+2)$
16. $-3x^2(4x+2) + 5x(1-6x)$
17. $5(x^2-4) + 2x(-3x^2+7)$

Oct 11-2:03 PM

Oct 11-2:05 PM