

October 15, 2018, Monday

Oct 11-1:39 PM

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Name: _____ Date: _____

Unit 3 Test Review

Simplify the following fractional operations:

$\frac{11}{8} + \frac{7}{6}$	$\frac{5}{8} + \frac{7}{2}$
$\frac{5}{3} - \frac{3}{5}$	$2 - \frac{1}{2}$
$\frac{3}{2} - \frac{11}{12}$	$\frac{9}{5} - 7$
$\frac{7}{4} - \frac{1}{5}$	$\frac{1}{4} - 2$

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.

- If Jennifer only works at job A, write an equation for her total income I for working a hours.
 - How much will she make if she works 15 hours in the week? Justify your answer.
- If she wants to make \$153 dollars per week, how many hours would she have to work? Justify your answer.
- If Jennifer only works at job B, write an equation for her total income I for working b hours.
 - How much will she make if she works 15 hours in the week? Justify your answer.
 - If she wants to make \$341 dollars per week, how many hours would she have to work? Justify your answer.
- If Jennifer works at both job A and job B during the week,
 - Write an equation for her total income for working a hours at job A and b hours at job 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:

$x - 2y = 6$ $3x - 2y = 8$
 $x + 2y = -2$ $2x + y = 3$

October 16, 2018, Tuesday

$y = -\frac{5}{2}x - 1$

Solve each system by graphing.

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

2) $x + 2y = -2$
 $5x + 2y = -2$

Sketch the graph of each line.

$(3, -1)$

$Weds!$

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

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

1) $5x + 4y = 0$ $y = \frac{5}{4}x + 0$ $2x + 2y = -8$
 $m = \frac{5}{4}$ $b = 0$ $\frac{2y}{2} = \frac{-x-4}{2}$ $y = -\frac{x}{2} - 2$ $m = -\frac{1}{2}$ $b = -2$

2) $3x + 2y = 2$ $4x - 5y = 20$ $4x - 5y = 20$
 $\frac{4x}{4} - \frac{5y}{4} = \frac{20}{4}$ $y = \frac{4x}{5} - 4$ $m = \frac{4}{5}$ $b = -4$

3) $y = -\frac{1}{3}x + 3$ $m = -\frac{1}{3}$ $b = 3$

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

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Oct 16-8:56 AM

Oct 16-8:57 AM

October 17, 2018, Wednesday

Graph the system and identify the solution. $(4, 4)$

$y = mx + b$

1st: b
y-intercept
2nd: m
rise
run

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

$x - 4y = -12$
 $-x \quad -x$
 $-4y = -x - 12$
 $-4y = -x - 12$
 $y = \frac{-x}{-4} = \frac{x}{4} + 3$
 $m = \frac{1}{4}$
 $b = 3$

$5x - 4y = 4$
 $-5x \quad -5x$
 $-4y = 4 - 5x$
 $y = \frac{4 - 5x}{-4} = \frac{5x}{4} - 1$
 $m = \frac{5}{4}$
 $b = -1$
quiz...

Oct 17-7:47 AM

October 18, 2018, Thursday

$y = mx + b$
 $mx + b = y$

Write the slope-intercept form of the equation of each line. Identify the y-intercept (b) and the slope (m).

1) $4x - y = 7$
 $4x - y = 7$
 $-y = -4x + 7$
 $y = 4x - 7$
 $m = 4$
 $b = -7$

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

Oct 11-2:00 PM

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Name: _____ Date: _____

Unit 3 Test Review

Simplify the following fractional operations:

$\frac{11 - 7}{8} \cdot \frac{6}{6}$	$\frac{6}{24}$	$\frac{5 \cdot 7}{8 \cdot 2}$	$\frac{35}{16}$
$\frac{5 \cdot 3}{3 \cdot 5}$	$\frac{16}{15}$	$2 \cdot \frac{1}{2}$	$\frac{2}{2}$
$\frac{3 \cdot 11}{2 \cdot 8}$	$\frac{33}{16}$	$\frac{9}{5} \cdot \frac{7}{7}$	$\frac{63}{5}$
$\frac{7 \cdot 1}{4 \cdot 3}$	$\frac{7}{12}$	$\frac{1 \cdot 2}{4 \cdot 2}$	$\frac{1}{4}$

Equation	Steps
$3x - 12 = 42$	Distributive POE
$3x = 54$	Additive POE
$x = 18$	Subtractive POE
	Division

Oct 17-7:50 AM

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Jennifer is a college student who works two jobs after school and on weekends. She gets \$13 an hour.

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

$9a = I$

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

$9 \times 15 = 135$

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

She would have to work 17 hours a week to get \$153 dollars

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

$11b = I$

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

$11 \cdot 15 = I$

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

$11b = 341$
 $b = 31$

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.

$9a + 11b = I$

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

$9(12) + 11(12) = I$
 $240 = I$

Oct 17-7:50 AM

Foundations of Algebra Unit 3: Equations and Inequalities Test Review

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

$2x - 5y = -25$
 $-5y = -2x - 25$
 $y = \frac{-2x - 25}{-5} = \frac{2x}{5} + 5$
 $m = \frac{2}{5}$
 $b = 5$

$4x + 9y = -1$
 $9y = -4x - 9$
 $y = \frac{-4x - 9}{9} = -\frac{4}{9}x - 1$
 $m = -\frac{4}{9}$
 $b = -1$

Graph the following linear equations:

$2x + 5y = 10$
 $5y = -2x + 10$
 $y = \frac{-2x + 10}{5}$
 $y = -\frac{2}{5}x + 2$
 $m = -\frac{2}{5}$
 $b = 2$

$2x - 3y = 8$
 $-3y = -2x + 8$
 $y = \frac{-2x + 8}{-3} = \frac{2x}{3} - \frac{8}{3}$
 $m = \frac{2}{3}$
 $b = -\frac{8}{3}$

Solve each system of linear equations by graphing:

$2x - 3y = 8$
 $3x - 2y = 3$
 $2x - 3y = 8$
 $-3x + 2y = -3$
 $-x - 3y = 11$
 $-x - 3y = 11$
 $0 = 0$
 $x = 2$
 $y = 1$
 $(2, 1)$

Oct 17-7:50 AM

October 19, 2018, Friday

Write the slope-intercept form of the equation of each line.

1) $3x + 2y = 7$

Sketch the graph of each line.

2) $x = 5$

(x,y)

(5,3)
(5,0)
(5,-2)

$$3x + 2y = 7$$

$$\frac{2y}{2} = \frac{7 - 3x}{2}$$

$$y = \frac{7}{2} - \frac{3x}{2}$$

$m = -\frac{3}{2}$ $b = \frac{7}{2}$

Unit 3 Test!

Oct 11-2:02 PM

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

Day 1 - Combining Like Terms

Conditions for Combining Like Terms:

- The terms must have the same _____.
- Variables must have the same _____.

Simplify each expression:

1. $-9t - 2 - 6$	2. $8 - 6x + 1 - 3x$
3. $5x - 25 + 8x$	4. $7j + 2 + 8j$
5. $-2b - 6(7b - 2)$	6. $6k(1 + 3k) - 2(4b - 3)$
7. $-7(-7x - 1) + x(-3x)$	8. $-3(-4y + 1) - 5(2 - 3y)$
9. $5xy - 8 - 8y(x - 3)$	10. $-3x(x - 5) + 5(x + 5)$

Oct 17-7:50 AM

WHAT CAN YOU SAY ABOUT A MONSTER WITH FIVE LEGS?

Simplify the expression. Write the factor of the expression in the box that contains the number of the monster.

1. $3x + 16 + 2x + 4$	2. $15x + 50y + 11$	3. $10x^2 + 30x + 12$	4. $2x^2 + 5x + x^2 + 9$	5. $3x^2 + 4x^2 + 18$	6. $2x^2 + 70x^2 + 3x^2 + 18$	7. $4x^2 + 8x^2 + 6x^2 + 7x^2$	8. $3x^2 + 5x + 11b$	9. $7x^2 + 7x^2 + 25x^2 + 250$	10. $7x^2 + 80b + 20x^2$
11. $4x + 6 + 2x + 4$	12. $15x + 50y + 11$	13. $10x^2 + 30x + 12$	14. $2x^2 + 5x + x^2 + 9$	15. $3x^2 + 4x^2 + 18$	16. $2x^2 + 70x^2 + 3x^2 + 18$	17. $4x^2 + 8x^2 + 6x^2 + 7x^2$	18. $3x^2 + 5x + 11b$	19. $7x^2 + 7x^2 + 25x^2 + 250$	20. $7x^2 + 80b + 20x^2$

1.8

Oct 11-1:59 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	Domain:
Number of Seconds (input)	1 4 7 8
Meters Covered (output)	3 20 33 40
	Range:

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

Function: $y = x - 6$	Domain:
x (input)	3 0 7 8
y (output)	9 -6 1 2
	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? _____

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

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?

- $\{(0,2), (4,3), (5,4), (6,3)\}$
-
-
-

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 $x = 4$.

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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.

-
-
-

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

- | | |
|--------|----|
| Input | 7 |
| Output | -7 |
| Input | 8 |
| Output | 8 |
| Input | 2 |
| Output | 8 |
- | | |
|--------|----|
| Input | 2 |
| Output | -4 |
| Input | 4 |
| Output | -2 |
| Input | 6 |
| Output | 0 |

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

- $f(x) = 2x - 5$
- $h(x) = 6x + 2$
- $g(x) = 24x$

- $f(x) = 0.5x + 12$
- $h(x) = \frac{2}{3}x - 1$
- $f(x) = \frac{3}{2}x + 2$

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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. $h(-8) =$ _____ 4. $k(5) =$ _____

5. $f(2) =$ _____ 6. $g(6) =$ _____

7. $h(-3) =$ _____ 8. $k(-4) =$ _____

Simplify each expression.

9. $-4(1+3x) - 2x(-3x+2)$ 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. $2x(x^2+1)x^2 - 9x - 3$ 14. $-3x^2(2y-4x) + 5x^3(8-8x)$

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

Find the indicated values by using the graph.

1. $f(2) =$ _____ 2. $f(4) =$ _____

3. $f(8) =$ _____ 4. $f(5) =$ _____

5. $f(\text{---}) = 4$ 6. $f(\text{---}) = 1$

7. What are the values for $f(\text{---}) = 2$?

Find the indicated values by using the table.

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

8. $g(0) =$ _____ 9. $g(2) =$ _____

10. $g(8) =$ _____ 11. $g(26) =$ _____

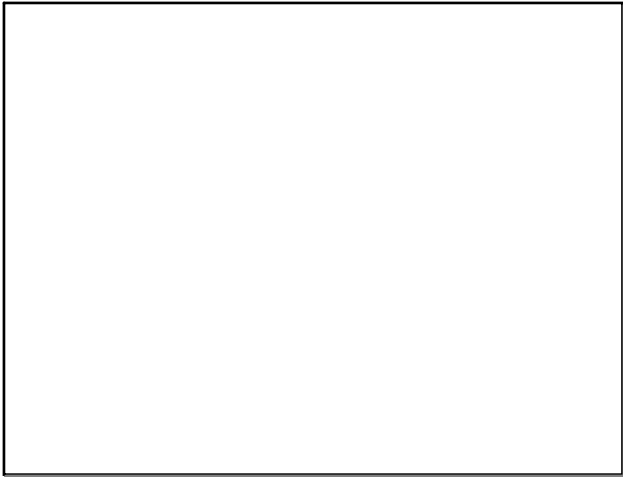
12. $g(\text{---}) = 21$ 13. $g(\text{---}) = 33$

Simplify each expression.

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

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

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