

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 \$411 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

Solve each system by graphing.

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

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

Sketch the graph of each line.

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

$3, -1$

Wed 10/17

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Foundations of Algebra Unit 3: Equations and Inequalities Test Review

Name: _____ Date: _____ ID: 1

Unit 3 Quiz #2 Review $y = mx + b$

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

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

2) $3x + 2y = 2$ $4x - 2y = 8$
 $\frac{2y}{2} = \frac{2-3x}{2}$ $\frac{2y}{-2} = \frac{8-4x}{-2}$
 $y = \frac{1}{2}x + 1$ $y = -2x + 4$
 $m = \frac{1}{2}$ $b = 1$ $m = -2$ $b = 4$

3) $y = -\frac{7}{3}x + 3$ $y = \frac{1}{4}x - 2$
 $m = -\frac{7}{3}$ $b = 3$ $m = \frac{1}{4}$ $b = -2$

Oct 16-8:56 AM

7) $x - 3y = 9$

8) $3x - 2y = -4$

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

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

Solve each system by graphing.

9) $x - 3y = 9$
 $3x - 2y = -4$

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

$(-2, 4)$

Oct 16-8:57 AM

October 17, 2018, Wednesday

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

$y = mx + b$

1st: b
 2nd: m
 rise
 run

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

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

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

quiz...

Oct 17-7:47 AM

October 18, 2018, Thursday

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

1) $4 = -y + 6x$
 $y = 6x - 4$

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

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

1) $4 = -y + 6x$

2) $-9 + 7x = 3y$

Test...

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:

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

Equation	Steps
$3(x - 4) = 42$	Given

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. 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 \$141 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.

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:

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

m: _____ m: _____
 b: _____ b: _____

Graph the following linear equations:

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

Solve each system of Linear Equations by Graphing:

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

Oct 17-7:50 AM

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. $-5n - 2 - 6$	2. $8 - 6x + 1 - 3x$
3. $5x - 25 + 8d$	4. $7y + 2 + 8y$
5. $-2b - 6(7b - 2)$	6. $60(1 + 3k) - 2(-4b - 3)$
7. $-7(-7x + 1) + x(-3x)$	8. $-2y(-4y + 1) - 5(2 - 3y)$
9. $5xy - 8 - 8yx - 3$	10. $-3(x - 5) - 5(x + 5)$

Oct 17-7:50 AM

What Can You Say About a Monster With Five Legs?

Simplify the expressions. Write the letter of the answer in the line that contains the number of the answer.

1. $3x^2 + 10x + 9$
 2. $9x^2 + 4x + 12x^2$
 3. $2x^2 + 7x^2 + 5x^2 + 18$
 4. $4x^2 + 18$
 5. $9x^2 + 8x^2 + 8x^2$
 6. $6x^2 + 3x + 11x$
 7. $7x^2 + 2x^2 + 20$
 8. $7x^2 + 8x + 2x^2$
 9. $4x^2 + 10x + 32$
 10. $2x^2 + 8x + 89$
 11. $7x^2 + 8x + 1x^2$
 12. $4x^2 + 8x + 30$
 13. $4x^2 + 8x + 30$
 14. $4x^2 + 8x + 30$
 15. $4x^2 + 8x + 30$
 16. $4x^2 + 8x + 30$
 17. $4x^2 + 8x + 30$
 18. $4x^2 + 8x + 30$
 19. $4x^2 + 8x + 30$
 20. $4x^2 + 8x + 30$

Tools for Algebra: Using the Distributive Property

1.8

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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.

Number of Seconds (input)	1	4	7	8
Meters Covered (output)	3	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.

x (input)	3	0	7	8
y (output)	9	4	1	2

Domain: _____ Range: _____

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

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?

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

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

Evaluating 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 | Output |
| 1 | 7 |
| 2 | 8 |
| 3 | 8 |
- | | |
|-------|--------|
| Input | Output |
| 3 | 2 |
| 5 | 4 |
| 7 | 6 |
- | | |
|-------|--------|
| Input | Output |
| 0 | -4 |
| 2 | -4 |
| 4 | -2 |
| 6 | 0 |

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

- $f(x) = 2x - 5$
- $h(x) = 6x + 2$
- $g(x) = 24x$
- $f(x) = 0.5x + 12$
- $h(x) = \frac{2}{3}x - 1$
- $f(x) = \frac{3}{4}x + 2$

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October 19, 2018, Friday

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

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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. $g(26) =$ _____

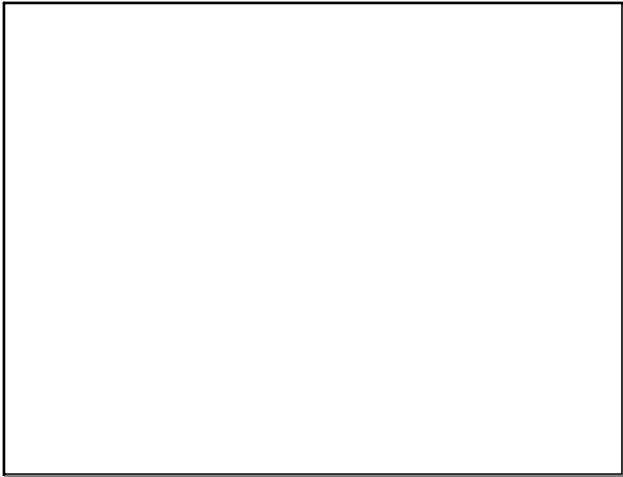
12. $g(\text{---}) = 21$ 13. $g(\text{---}) = 33$

Simplify each expression.

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