



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 \$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 11:30

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

2) $3x + 2y = 2$ $4x + 3y = 2$
 $-\frac{x}{2} - \frac{x}{2} = \frac{2-2x}{2}$ $\frac{4y}{3} = \frac{2-5x}{3}$
 $\frac{4y}{3} = -\frac{5x}{3} + \frac{2}{3}$ $y = -\frac{5x}{3} + \frac{2}{3}$
 $y = -x + \frac{2}{3}$ $m = -1$ $b = \frac{2}{3}$
 $m = -\frac{5}{3}$ $b = \frac{2}{3}$

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

7) $x - 3y = 9$

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

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

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

Solve each system by graphing.

$M = -\frac{3}{2}$ $b = 2$

$(-2, 4)$

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October 17, 2018,
 Wednesday

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

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WHAT CAN YOU SAY ABOUT A MONSTER WITH FIVE LEGS?

Directions: Simplify the expression. Write the letter of the answer in the box that contains the number of the answer.

1. $3x + 6 + 2x + 5$ 2. $4x + 5y + x + 8y$ 3. $5x + 6y + 10 + 12x + y + 1$ 4. $3x + 3 + 9x$

5. $2x + 2x + 5$ 6. $3x + 3 + 9x$ 7. $3x + 3 + 9x$ 8. $3x + 3 + 9x$

9. $3x + 3 + 9x$ 10. $3x + 3 + 9x$ 11. $3x + 3 + 9x$ 12. $3x + 3 + 9x$

13. $3x + 3 + 9x$ 14. $3x + 3 + 9x$ 15. $3x + 3 + 9x$ 16. $3x + 3 + 9x$

17. $3x + 3 + 9x$ 18. $3x + 3 + 9x$ 19. $3x + 3 + 9x$ 20. $3x + 3 + 9x$

21. $3x + 3 + 9x$ 22. $3x + 3 + 9x$ 23. $3x + 3 + 9x$ 24. $3x + 3 + 9x$

25. $3x + 3 + 9x$ 26. $3x + 3 + 9x$ 27. $3x + 3 + 9x$ 28. $3x + 3 + 9x$

29. $3x + 3 + 9x$ 30. $3x + 3 + 9x$ 31. $3x + 3 + 9x$ 32. $3x + 3 + 9x$

33. $3x + 3 + 9x$ 34. $3x + 3 + 9x$ 35. $3x + 3 + 9x$ 36. $3x + 3 + 9x$

37. $3x + 3 + 9x$ 38. $3x + 3 + 9x$ 39. $3x + 3 + 9x$ 40. $3x + 3 + 9x$

41. $3x + 3 + 9x$ 42. $3x + 3 + 9x$ 43. $3x + 3 + 9x$ 44. $3x + 3 + 9x$

45. $3x + 3 + 9x$ 46. $3x + 3 + 9x$ 47. $3x + 3 + 9x$ 48. $3x + 3 + 9x$

49. $3x + 3 + 9x$ 50. $3x + 3 + 9x$ 51. $3x + 3 + 9x$ 52. $3x + 3 + 9x$

53. $3x + 3 + 9x$ 54. $3x + 3 + 9x$ 55. $3x + 3 + 9x$ 56. $3x + 3 + 9x$

57. $3x + 3 + 9x$ 58. $3x + 3 + 9x$ 59. $3x + 3 + 9x$ 60. $3x + 3 + 9x$

61. $3x + 3 + 9x$ 62. $3x + 3 + 9x$ 63. $3x + 3 + 9x$ 64. $3x + 3 + 9x$

65. $3x + 3 + 9x$ 66. $3x + 3 + 9x$ 67. $3x + 3 + 9x$ 68. $3x + 3 + 9x$

69. $3x + 3 + 9x$ 70. $3x + 3 + 9x$ 71. $3x + 3 + 9x$ 72. $3x + 3 + 9x$

73. $3x + 3 + 9x$ 74. $3x + 3 + 9x$ 75. $3x + 3 + 9x$ 76. $3x + 3 + 9x$

77. $3x + 3 + 9x$ 78. $3x + 3 + 9x$ 79. $3x + 3 + 9x$ 80. $3x + 3 + 9x$

81. $3x + 3 + 9x$ 82. $3x + 3 + 9x$ 83. $3x + 3 + 9x$ 84. $3x + 3 + 9x$

85. $3x + 3 + 9x$ 86. $3x + 3 + 9x$ 87. $3x + 3 + 9x$ 88. $3x + 3 + 9x$

89. $3x + 3 + 9x$ 90. $3x + 3 + 9x$ 91. $3x + 3 + 9x$ 92. $3x + 3 + 9x$

93. $3x + 3 + 9x$ 94. $3x + 3 + 9x$ 95. $3x + 3 + 9x$ 96. $3x + 3 + 9x$

97. $3x + 3 + 9x$ 98. $3x + 3 + 9x$ 99. $3x + 3 + 9x$ 100. $3x + 3 + 9x$

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October 18, 2018, Thursday

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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)	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.

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

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

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

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 | 9 |
- | Input | Output |
|-------|--------|
| 3 | 2 |
| 5 | 4 |
| 7 | 6 |
- | Input | Output |
|-------|--------|
| 0 | -6 |
| 2 | -4 |
| 4 | -2 |
| 6 | 0 |

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

- $f(x) = 2x - 5$
- $h(x) = 6x + 2$
- $g(x) = 2.4x$

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

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October 19, 2018, Friday

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

Day 3 - Evaluating Functions and Simplifying Expressions

Use the following functions to find the given value:

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

- $f(2) =$ _____
- $g(4) =$ _____
- $f(-6) =$ _____
- $h(5) =$ _____
- $h(2) =$ _____
- $g(6) =$ _____
- $f(-3) =$ _____
- $k(-4) =$ _____

Simplify each expression.

- $-6(3x - 2) - 2(3x + 2)$
- $3(4y - 4) - 5(-7x + y)$
- $-6x^2(5x - 1) - 8(4) + 8(x)$
- $-7(y^2 + 7) + 2y(8y^2 + 1)$
- $2(4x^2 + 1) - 9x - 3$
- $-3x^2(2y - 4) + 5x^2(8 - 8x)$

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

Find the indicated values by using the graph.

- $f(2) =$ _____
- $f(6) =$ _____
- $h(1) =$ _____
- $h(5) =$ _____
- $h(\text{---}) = 4$
- $h(\text{---}) = 1$
- What are the values for $h(\text{---}) = 2$?

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	

- $g(0) =$ _____
- $g(2) =$ _____
- $g(4) =$ _____
- $g(6) =$ _____
- $g(8) =$ _____
- $g(10) =$ _____
- $g(\text{---}) = 21$
- $g(\text{---}) = 33$

Simplify each expression.

- $2(4x^2 - 8) - 3(-3x + 2)$
- $3(4x - 6) - 8(7x + 2)$
- $-3x^2(4x + 2) + 5x(-6x)$
- $5(x^2 - 4) + 2(-3x^2 + 7)$

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