


Monday, October 1st, 2018



1) $\frac{4}{5} + \frac{4}{7} = \frac{48}{35}$

2) $\frac{5}{4} + \frac{3}{4} = 2$

3) $\frac{1}{2} + \frac{11}{8} = \frac{15}{8}$

4) $\frac{5}{4} + \frac{4}{5} = \frac{31}{20}$

5) $\frac{1}{5} + \frac{1}{3} = \frac{8}{15}$

6) $\frac{8}{7} + \frac{1}{3} = \frac{52}{21}$

Sep 16-11:56 AM

Foundations of Algebra Unit 2 - Relationships Among Quantities Practice

Day 10 - Applications of Metric Conversions

Answer the following questions using metric conversions.

1. There is a jar on the cabinet by the refrigerator. Savannah pours 208 milliliters of water in the jar six times to fill it. How many liters of water does it take to fill the jar?
 $208 \text{ mL} \times 6 = 1248 \text{ mL} = 1.248 \text{ L}$

2. Eric's father asked an engineer to survey the field house. According to the plan, the field house is 17 meters long and 17 meters wide. What is the perimeter of the field?
 $17 \text{ m} \times 2 = 34 \text{ m}$

3. We have a park next in our house. He is 0.54 meters long and weighs 4.1 kg. He is our new puppy. The veterinarian said he should gain about 136 grams per week. At that rate, how much, in kilograms, will he weigh in 3 months?
 $0.54 \text{ m} \times 12 = 6.48 \text{ m}$
 $4.1 \text{ kg} + (136 \text{ g} \times 3) = 4.1 \text{ kg} + 408 \text{ g} = 4.508 \text{ kg}$

4. There are 4 aluminum cans sitting on the shelf. Each can contains 321 milliliters of soda. How many liters of soda are in all the cans?
 $321 \text{ mL} \times 4 = 1284 \text{ mL} = 1.284 \text{ L}$

5. Brandon looked at the 10 liter jug of Grossome Green soda sadly. He had bet his friend that he could drink all of it and now he was sure his stomach would explode if he drank one more milliliter. He had already drunk 300 milliliters. How much was left in the jug, in liters?
 $10 \text{ L} - 0.3 \text{ L} = 9.7 \text{ L}$

Sep 20-1:04 PM

Day 10 - More Metric Conversions

5.1	6.700	320	58	3260	58	7.5	75	58	3.2	6700	326
5.8	6.7	8.97	730	58	6700	7.3	75	89.7	58	7.5	

Work out the missing number for each question and then write the correct letter above each number in the above box. The first question has been completed.

Write:

A	3200 ml in l = 3.21	M	7500 cl in l
B	897 ml in cl	N	6.7 in ml
E	0.058 l in ml	O	8970 ml in l
G	32.6 in cl	R	7500 ml in l
H	67 ml in cl	S	3260 ml in cl
I	5100 ml in l	T	32 cl in ml
L	0.73 l in ml	U	73 ml in cl
		W	5800 ml in l

Sep 20-1:04 PM

Tuesday, October 2nd, 2018

Find each difference.

7) $\frac{5}{3} - \frac{2}{5}$

8) $\frac{7}{4} - \frac{6}{7}$

9) $\frac{7}{6} - \frac{1}{3}$

10) $\frac{4}{3} - \frac{6}{7}$

11) $\frac{5}{3} - \frac{1}{2}$

12) $2 - \frac{1}{6}$

Sep 16-11:56 AM

Foundations of Algebra Unit 2 - Relationships Among Quantities Practice

Unit 2 Support

Unit Conversions

1. Convert 90 dm to cm.
 $90 \text{ dm} = 9000 \text{ cm}$

2. Convert 1560 decimeters to meters.
 $1560 \text{ dm} = 156 \text{ m}$

3. Convert 10 kilometers to meters.
 $10 \text{ km} = 10000 \text{ m}$

4. The cross country team is made up of 12 runners. If every runner must run a 5 kilometer race, how many kilometers do they run altogether?
 $12 \times 5 \text{ km} = 60 \text{ km}$

5. How long does a car traveling at 20 mph take to travel 250 miles?
 $20 \text{ mph} \times 12.5 \text{ hours} = 250 \text{ miles}$

Short Answer:

6. For the expression $12x^2 + 15x + 10$, find any coefficients, variables, and the number of terms.
 CO: 12, 15, 10
 V: x
 TERMS: 3

7. April is moving apartments. Her family needs to rent a U-Haul truck to transport their furniture. The rental company charges \$19.99 for the truck. Then, they charge \$0.20 per mile. Write an equation that represents how much it will cost to use the truck where x = the miles driven. How much will it cost if the family drives it 40 miles?
 $20x + 19.99 = 20(40) + 19.99 = 27.99$

8. You need a plumber to come to your house. Pete charges \$50 to come your house and \$75 per hour he is there. Paul charges \$75 to come to your house and \$50 for each hour he is there. Write an equation to represent the charges for both plumbers. Who is cheaper for 3 hours worth of work?
 Pete: $50 + 75x = 275$
 Paul: $75 + 50x = 225$

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Foundations of Algebra Unit 2 - Relationships Among Quantities Study Guide

9. The sum of 3 consecutive integers is 75. Write an equation and find the three numbers.

10. Peyton wants to get an A in her Chemistry class this semester. Her first 4 tests were a 94, 83, 88, and a 91. What does she need to make on her 5th test to get a 90% average?

11. Bill is building a sand box for his son to play in. The length is 2 feet more than the width. He has 20 feet of boards. What are the dimensions of his sand box?

12. Mary is going to the store to get some ice cream for her party. Her mom gave her \$15 to spend. She wants to get a combination of ice cream sandwiches at \$3 per box and gallons of Breyers ice cream at \$5 each.

a) Write an equation in standard form to model this situation where s is the number of boxes of sandwiches, and b is the gallons of Breyers.

b) Solve the equation for b, in terms of s, the number of boxes of ice cream sandwiches.

c) If she buys 3 boxes of sandwiches, how many gallons of Breyers can she get?

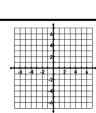
Solve the formula for the indicated variable:

13. For: $V = mh$

14. For: $2x + 14y = -21$

15. For: $V = \frac{A+h}{3}$

16. Solve the equation for y and graph.
 $4x + 2y = -6$



Sep 18-1:43 PM

Wednesday, October 3rd, 2018

1) $\frac{3}{10} \times \frac{2}{3} =$

2) $\frac{2}{4} \times \frac{1}{2} =$

3) $\frac{3}{10} \times \frac{2}{4} =$

4) $\frac{2}{5} \times \frac{2}{10} =$

5) $\frac{2}{4} \times \frac{2}{3} =$

6) $\frac{1}{2} \times \frac{1}{4} =$

Sep 16-11:56 AM

Foundations of Algebra Unit 3 – Equations and Inequalities Notes
Name: _____ Date: _____

Day 1 – Properties of Equality

When we solve equations, there is a specific reason why we perform each step. These steps can often be justified with properties. Understanding the properties of equality and operations and identities will deepen your knowledge on equations and help you to better understand the "why" in addition. Knowing these will assist you when you prove certain mathematical things in other math courses.

Properties of Equality			
Property	What It Means	General Example	Example 1
Addition Property of Equality	Adding the same number to both sides of an equation	If $a = b$, then $a + c = b + c$	
Subtraction Property of Equality	Subtracting the same number to both sides of an equation	If $a = b$, then $a - c = b - c$	
Multiplication Property of Equality	Multiplying by the same number to both sides of an equation	If $a = b$, then $ac = bc$	
Division Property of Equality	Dividing by the same number to both sides of an equation	If $a = b$, then $\frac{a}{c} = \frac{b}{c}$	
Reflexive Property of Equality	A real number is always equal to itself	$a = a$	
Symmetric Property of Equality	Two numbers that are equal may be read from either direction	If $a = b$, then $b = a$	
Transitive Property of Equality	If two numbers are equal to the same number, then the numbers are equal to each other	If $a = b$ and $b = c$, then $a = c$	
Substitution Property	A number may be substituted for its equal	If $x = y$, then y can be substituted for x in any equation	

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Foundations of Algebra Unit 3 – Equations and Inequalities Notes

Properties of Addition Operations			
Property	What It Means	General Example	Example 1
Commutative Property of Addition	Rearrange the order and the sum will stay the same.	$a + b = b + a$	
Associative Property of Addition	Change the order of the grouping and the sum will stay the same.	$(a + b) + c = a + (b + c)$	
Additive Identity Property	Zero added to any number will equal that number.	$a + 0 = a$	
Additive Inverse Property	A number plus its inverse equals 0.	$a + -a = 0$	

Properties of Multiplication Operations			
Property	What It Means	General Example	Example 1
Commutative Property of Multiplication	Rearrange the order and the product will stay the same.	$a \cdot b = b \cdot a$	
Associative Property of Multiplication	Change the order of the grouping and the product will stay the same.	$(a \cdot b) \cdot c = a \cdot (b \cdot c)$	
Multiplicative Identity Property	One times any number equals that number.	$a \cdot 1 = a$	
Multiplicative Inverse Property	A number times its reciprocal equals 1.	$\frac{a}{b} \cdot \frac{b}{a} = 1$	
Zero Property of Multiplication	Any number times 0 will always equal 0.	$a \cdot 0 = 0$	
Distributive Property	Multiply a number to every term within a quantity (parenthesis).	$a(b + c) = ab + ac$	
Exponential Property of Equality	If two numbers with the same base raised to different powers are equal, then their exponents are equal.	$a^m = a^n$, then $m = n$	

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Foundations of Algebra Unit 3 – Equations and Inequalities Practice

Name: _____ Date: _____

Day 1 – Properties of Equality

1. A football team is on the 33-yard line. The quarterback is sacked at the line of scrimmage. The team gains 0 yards. Which identify or property does this represent? Explain.

2. Identify the sentence that does not belong with the other ones. Explain.

$x + 12 = 12 + x$ $7 = 7 + 7$ $1 + a = a + 1$ $(2)k = 2(k)$

Identify the property or identity represented by each example:

3. $9 \cdot 7 = 7 \cdot 9$	
4. $2 \cdot (3 \cdot 4) = (2 \cdot 3) \cdot 4$	
5. $-37 \cdot 0 = 0$	
6. $1 \cdot 87 = 87$	
7. $14 + 6 = 6 + 14$	
8. $3(6a) = (3 \cdot 6)a$	
9. $2b \cdot 0 = 2b$	
10. $55 + 6 = 6 + 55$	
11. If $2^4 = 2^4$ then $4 = x$	
12. $(x + 3) + y = x + (3 + y)$	
13. $7 \cdot mp = mp$	
14. $7 + (5 + 35) = (7 + 5) + 35$	
15. $6b \cdot 0 = 6b$	
16. $7x \cdot 0 = 0$	
17. $4(3 \cdot 2) = 14 \cdot 3z$	
18. If $4^x = 4^4$ then $x = 5$	

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Tuesday, October 4th, 2018

g. $\frac{3}{5} \div \frac{2}{3}$ h. $\frac{8}{9} \div \frac{4}{5}$ i. $\frac{7}{9} \div \frac{1}{2}$

j. $7 \div \frac{7}{8}$ k. $\frac{3}{7} \div \frac{4}{5}$ l. $\frac{2}{3} \div \frac{8}{9}$

Sep 16-11:56 AM

Foundations of Algebra Unit 3 – Equations and Inequalities Notes

Name: _____ Date: _____

Day 2 – Properties of Equality (Justifying)

Identify the property of equality that justifies the missing step(s) to solve the given equation.

Equation	Steps
$3x + (x - 8) = 12$	Original Equation (Given)
$4x - 8 = 12$	Associative property of Addition
$4x = 20$	(1)
$x = 5$	(2)

Equation	Steps
$6x + 14 = 12.8$	Original Equation (Given)
$6x = -1.2$	(3)
$x = -0.2$	(4)

Equation	Steps
$-6 = 3x - (x + 4)$	Original Equation (Given)
$-6 = 3x - x - 4$	(5)
$-6 = 2x - 4$	Combine Like Terms
$-2 = 2x$	(6)
$-1 = x$	(7)
$x = -1$	(8)

Identify the property of equality that justifies each missing step and/or finish solving the equation in each of the following tables.

Equation	Steps
$4 - 3x = 16 + x$	Original Equation (Given)

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Foundations of Algebra Unit 3 – Equations and Inequalities Notes

Identify the property of equality that justifies each missing step and/or finish solving the equation in each of the following tables.

Equation	Steps
$3x + 12 = 8x - 18$	Given
$12 = 5x - 18$	
$6 = x$	Addition Property of Equality

Equation	Steps
$3k + 5 = 17$	Given
$3k = 12$	
	Division Property of Equality

Equation	Steps
$-6a - 5 = -95$	Given

Equation	Steps
$3(5x + 1) = 13x + 5$	Given

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Foundations of Algebra Unit 3 – Equations and Inequalities Practice

Name _____ Date _____

Day 2 - Properties of Equalities Practice

Identify the property of equality that justifies each missing step and/or finish solving the equation in each of the following tables.

Equation	Steps
$x - 1.2 = 1.9$	Original equation
$x = 3.1$	

Equation	Steps
$5x = 37$	Original equation
$x = 7.4$	

Equation	Steps
$2x + 3 = 15$	Original equation
$2x = 12$	Subtraction property of equality
$x = 6$	

Equation	Steps
$19 = 2x - 7$	Original equation
$26 = 2x$	
$13 = x$	Division property of equality
$x = 3$	Symmetric property of equality

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Foundations of Algebra Unit 3 – Equations and Inequalities Practice

5.

Equation	Steps
$x + (x - 0.6) = 2$	Original equation
$2x - 0.6 = 2$	Associative property of addition
	Addition property of equality
$x = 1.3$	

6.

Equation	Steps
$x + (4x + 32) = 12$	Original equation
$5x + 32 = 12$	Associative property of addition
$5x = -20$	
	Division property of equality

7.

Equation	Steps
$4(t - 6) = 40$	Original equation
$t - 6 = 10$	
$t = 16$	

8.

Equation	Steps
$1.4 - 0.3x + 0.7x = 9.4$	Original equation
$1.4 + 0.4x = 9.4$	
$0.4x = 8$	
$x = 20$	

Sep 18-1:50 PM

Friday, October 5th, 2018

1) $\frac{3}{5} \times \frac{4}{8} =$

2) $\frac{1}{2} + \frac{8}{10} =$

3) $\frac{1}{5} \div \frac{1}{2} =$

4) $\frac{3}{9} - \frac{1}{8} =$

5) $\frac{1}{3} + \frac{6}{9} =$

6) $\frac{4}{7} \times \frac{1}{2} =$

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Foundations of Algebra Unit 3 – Equations and Inequalities Classwork/Notes

Name _____ Date _____

Day 3 – Writing Linear Equations from a Context and Solving

Jaden has a prepaid phone plan (**Plan A**) that charges 15 cents for each text sent and 10 cents per minute for calls.

Jaden's Phone Plan Task

- If Jaden uses only text
 - Write an equation for the cost C of sending t texts.
 - How much will it cost Jaden to send 15 texts? Justify your answer.
 - If Jaden has \$6, how many texts can he send? Justify your answer.
- If Jaden only uses the talking features of his plan.
 - Write an equation for the cost C of talking m minutes.
 - How much will it cost Jaden to talk for 15 minutes? Justify your answer.
 - If Jaden has \$6, how many minutes can he talk? Justify your answer.
- If Jaden uses both talk and text.
 - Write an equation for the cost C of sending t texts and talking m minutes.
 - How much will it cost Jaden to send 7 texts and talk for 12 minutes? Justify your answer.
 - If Jaden wants to send 21 texts and only has \$6, how many minutes can he talk? Will this use all of his money? If not, how much money will he have left? Justify your answer.

Jaden discovers another prepaid phone plan (**Plan B**) that charges a flat fee of \$15 per month, then \$0.05 per text sent or minute used.

- Write an equation for the cost of Plan B.

In an average month, Jaden sends 200 texts and talks for 100 minutes.

- Which plan will cost Jaden the least amount of money? Justify your answer.

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Foundations of Algebra Unit 3 – Equations and Inequalities Classwork/Notes

Name _____ Date _____

Jennifer's Job Task

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 \$8 an hour, and at Job B, she gets \$10 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 20 hours in the week? Justify your answer.
 - If she wants to make \$200 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 20 hours in the week? Justify your answer.
 - If she wants to make \$300 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 10 hours of each job during the week. Justify your answer.
 - If Jennifer wants to make \$200 combined for working her two jobs, find 3 possible combinations of a hours at Job A and b hours at Job B that will give her exactly \$200. Justify your answer.

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Foundations of Algebra Unit 3: Equations and Inequalities Practice

Name: _____ Date: _____

Day 3 – Writing Linear Equations and Inequalities from a Context and Solving Practice

- Twenty more than half a number is at least 45. Find the smallest number that meets this condition.
- A showerhead uses about 6 gallons of water per minute. Given m , the number of minutes, write an equation that can be used to find g , the number of gallons used. How many minutes elapsed if 72 gallons of water were used?
- Cole is having his car repainted. The mechanic said it would cost at least \$375 for parts and labor. If the cost of the parts was \$150, and the mechanic charges \$60 an hour, how many hours is the mechanic planning to work on the car?
- A car sales associate receives a monthly salary of \$1700 a month plus \$140 for every car he sells. How many cars must he sell monthly to earn at least \$4500?
- A cell phone company charges \$0.28 for each text message. Paula plans to spend no more than \$5.00 on text messages next month. Write and solve an inequality to find how many text messages she will be able to send.
- Carla paid \$45 to join a golf camp for the summer. She will also pay \$15 for every private lesson that she takes. If she has budgeted \$225 for the camp, how many private lessons can she take?

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Foundations of Algebra Unit 3 – Equations and Inequalities Classwork

Name: _____ Date: _____

Day 3 – Writing Linear Equations from a Context and Solving

Tom the Tennis Instructor Task

Tom is a tennis instructor. He gives individual lessons for \$35 an hour and does team lessons for \$60 per hourly session. He has trouble getting teams to sign up when league play is not going on, so sometimes he has to count on individual lessons for his income.

- If Tom only does individual lessons.
 - Write an equation for his total income T working i hours.
 - How much will he make if he works 30 hours a week? Justify your answer.
- If he wants to make \$1,500 dollars per week, how many hours does he have to work? Justify your answer.
- If league play is going on, Tom can get both individual lessons and team lessons.
 - Write an equation for his total income T for working i individual hours and f team hours.
 - How much will he make if he works 30 hours of individual lessons and 10 hours of team lessons. Justify your answer.
 - If Tom works 30 hours of individual lessons, how many hours of team lessons would he need to make \$2,000 in a week?
 - If Tom works 20 weeks out of the year just doing 30 hours of individual lessons and 32 weeks doing both individual and team lessons (30 hours of individual and 10 hours of team lessons), how much does he make for the year?

Sep 18-2:00 PM