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2019 Math Summer Enrichment

Due Date: 9/4/2020

Directions/Instructions

- The Summer Enrichment must be completed in its entirety over the summer.
- This assignment will count as a test grade for the first marking period. Late submissions will result in reduction of the grade earned.
- This packet contains 7th Grade skills and Pre-Algebra skills necessary for 8th Grade.
- The following is divided into six, one-week sections that will allow you to generate a schedule to complete it. Follow the directions carefully in each section and pace yourself accordingly.

Thank you in advance for completing the Summer Enrichment by 9/04/2020

Week 1- Numbers and Operations

Web resources:

Integers and Rational Numbers

- https://www.mathsisfun.com/rational-numbers.html
- https://www.youtube.com/watch?v=cLP7INqs3JM

Addition of Rational Numbers

- https://www.mathgoodies.com/lessons/vol5/addition
- https://www.youtube.com/watch?v=204uFu0DRWE

Subtraction of Rational Numbers

- https://www.mathgoodies.com/lessons/vol5/subtraction

Multiplying and Dividing Rational Numbers

- https://www.mathplanet.com/education/pre-algebra/explore-and-understand-integers/multiplying-and-dividing-with-integers

Remember to complete the following problems WITHOUT THE USE OF A CALCULATOR.

1) For each problem, solve each addition problem and describe or show how you came to your answer.
   a) -53 + (-10) a) _____
   b) 14 + (-3) b) _____
   c) -15 + 5 c) _____
   d) -91 + 91 d) _____

WEEK 1 CONTINUED

2) For each problem, solve each subtraction problem and describe or show how you came to your answer.

a) 40 - (-20) a) _____

b) -30 - 70 b) _____

c) 15 - 25 c) _____

3) Complete the following problems.
   a) Which of the following equal -65
   (Circle all possible answers; there may be more than one answer)
      i) -5×13
      ii) 5×13
      iii) -13×5
      iv) 65×-1
      v) 1×65

4) Solve the following division problems **WITHOUT THE USE OF A CALCULATOR.** *Show your work and box in final response.*

a) $\frac{63}{7} =$

b) $\frac{-99}{11} =$

c) $\frac{-144}{-12} =$

Week 2- Rates and Ratios

- https://www.youtube.com/watch?v=RQ2nYUBVvqI
- http://www.eduplace.com/math/mathsteps/6/e/index.html
- https://www.youtube.com/watch?v=t9cuM699B10

1) Simplify the following fractions to its lowest terms.

   a) $\frac{10}{30} =$

   b) $\frac{45}{50} =$

   c) $\frac{25}{60} =$

2) There are a total of 15 cats for every 45 dogs at the shelter. Write the ratio and simplify to its lowest term.

3) Based on the information and your response from number 2, estimate the number of dogs at the shelter if there are a total of 560 animals in the shelter.

4) When two ratios are equivalent to one another, it is known as a _____. (Use the equation below as an example)

5) Solve for the variable *c*.

$$\frac{12}{c} = \frac{6}{8}$$

Week 3- Fractions, Decimals & Percents

Fraction Operations & Mixed Numbers

- https://www.khanacademy.org/math/arithmetic/fraction-arithmetic

Percentage Problems

- https://www.khanacademy.org/math/pre-algebra/pre-algebra-ratios-rates#pre-algebra-percent-word-problems
- https://www.mathplanet.com/education/pre-algebra/ratios-and-percent/solving-problems-with-percent

Equivalent Fractions (Converting Fractions to Decimals and Percents)

- https://www.mathsisfun.com/decimal-fraction-percentage.html

Vocabulary (Look at the underline words)

- http://www.math.com/school/glossary/glossindex.html

Remember to complete the following problems WITHOUT THE USE OF A CALCULATOR!

1) Multiply the fraction, simplify or convert to a mixed number if necessary. Show your work.

$$\frac{12}{20} \cdot \frac{3}{2} =$$

2) Divide. Show your work. Simplify if necessary.

$$\frac{-2}{4} \div \frac{14}{30} =$$

3) Simplify the following fraction into its lowest form. Convert it to a decimal, then to a percent.

$$\frac{42}{49}$$

Simplest form: _____ Decimal: _____ Percent:_____

4) Add. Show your work. Simplify if necessary.

$$\frac{2}{6} + \frac{3}{30} =$$

WEEK 3 CONTINUED

5) Subtract. Show your work. Simplify if necessary.

$$\frac{9}{40} - \frac{5}{10} =$$

6) A student took an ELA test, and got 35 out of 50 possible answers correct. What is the percent of answers correct? Show your work.

7) A video game was originally $60 new. A customer used a coupon to take 15% off of the original price. What is the discount amount? How much did the game cost after the discount? Show your work.

8) A worker received a paycheck of $1,720 biweekly. She take 10% of each paycheck and puts it in her savings account. What is the amount she takes out of her paycheck (in dollars)? How much money is in her savings at the end of the month?

9) Add the following mixed numbers. Show your work and simplify if possible.

$$3\frac{5}{7} + 2\frac{3}{4} =$$

Week 4: Algebraic Lingo/Phrasing

- http://www.purplemath.com/modules/translat2.htm
- http://www.mathgoodies.com/lessons/vol7/equations.html

Complete the following problems below

1) *The difference between 60 and a number x equals 47. Which equation represents the following statement? Circle your answer.*

A. 60 + n = 47 B. 60 * n = 47 C. 60 - n = 47 D. $\frac{60}{n} = 47$

Write an algebraic expression for the following statements.

2) *The difference between eight and four times a number b.*

_____

3) *Twenty seven divided by a number y plus fourteen.*

_____

4) *The quantity of thirty-four plus six divided by number t.*

_____

5) *The sum of g and h.*

_____

Write an equation for the following statements.

6) *The product of fifteen is d times five.*

_____

7) *Mia has $300 in her bank account. She withdraws m amount for a bracelet and is left with $246.*

Week 5: Algebraic Expressions and Equations

Solving Equations

- https://www.mathplanet.com/education/pre-algebra/inequalities-and-one-step-equations/different-ways-to-solve-equations

Evaluating Equations

- https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-intro-to-variables/v/variables-and-expressions-1

Order of Operations

- https://www.mathsisfun.com/operation-order-pemdas.html

Combining Like Terms

- https://www.mathwarehouse.com/algebra/like-terms/how-to-combine-like-terms-in-math.php

Simplify and solve. Use the correct order of operations.

1) $5 + 7 \bullet 4 - 12 \div 6$

2) $(16 - 9 + 13) \div 2$

3) $4\,(7y + 3y)$

4) $4 \bullet 7y + 3y$

5) What is the difference between problem #3 and #4. How does it affect the problem?

Solve for x. Show your work.

6) $3x = 45$

7) $82 = 8x + 10$

WEEK 5 CONTINUED

Evaluate the following problems. **SHOW ALL WORK ON THIS PAGE.**

8) If *x*=5 and y=6, evaluate $\frac{x \bullet y}{30}$

9) If *h*= 19, evaluate 3*h* + 22.

10) If *z*= -4, which is larger z^2 or $2z$. *How do you know?*

Week 6: Area and Perimeter

Area of a Rectangle

- https://www.mathgoodies.com/lessons/vol1/area_rectangle

Area of a Triangle

- https://www.mathgoodies.com/lessons/vol1/area_triangle
- https://www.khanacademy.org/math/basic-geo/basic-geo-area-and-perimeter/area-triangle/a/area-of-triangle

Perimeter

- https://www.mathsisfun.com/geometry/perimeter.html

1) The floor of an apartment living room is 120 sq.ft. The owner is considering to place a rug down, and finds a rug that is 12 ft. by 11 ft. Will this rug fit in his living room? *Explain why.*

2) A gardener is working on a plot of land that is 7 ft by 8 ft. What is the area of this plot of land?

3) A triangle has a base of 13 inches and a height of 5 inches. What is the area of the triangle?

4) The perimeter of a basketball court is 97 feet. If the length of the court is 50 feet, what is the width in feet?

5) Elizabeth and Kylie are making a flyer for the canned food drive at school. They want to place it on the bulletin board that is 24 sq.ft. Will their paper of 3 feet by 2 feet fit onto the bulletin board? *Explain why.*