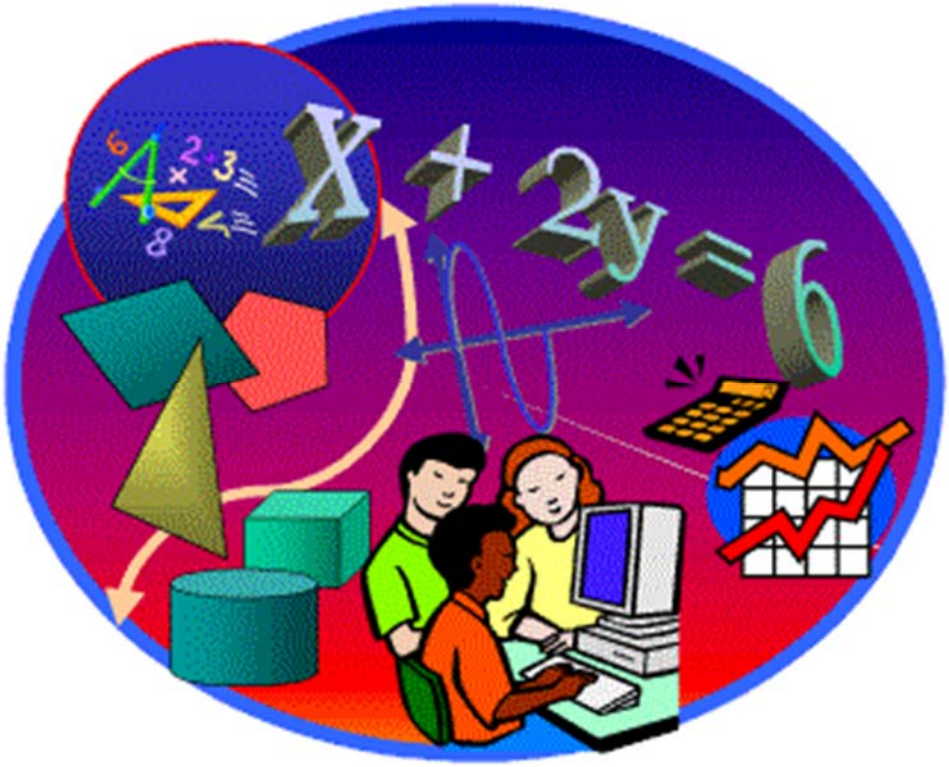
Summer Math Assignment
2019
Briggs Chaney Middle School



For Students Entering C2.0 Algebra 1

This summer math booklet was developed to provide students an opportunity to review math objectives and to improve math performance.

BRIGGS CHANEY MIDDLE SCHOOL

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Dear Student and Parent,

The purpose of this packet is to provide a review of objectives that were taught the previous school year and provide tasks related to the common core curriculum. Reviewing the material will help your child retain what he/she has learned this year, and assist them as they enter the next course in the sequence of study. The packet will be a homework grade in Marking Period 1.

An answer key can be accessed online at our school website. This answer key can be used in one of the following ways:

- Have your child check his/her work after each assignment.
- Check your child's work after each assignment.
- Check the entire packet once it is finished.

Whichever way you choose to use the answer key, make sure your child identifies and corrects all mistakes. Please note that these are sample answers and actual student answers may vary slightly, so it is important to check your child's work. In fact, it is anticipated that some answers and all student explanations should be different from the answer key. Please remind your child that **CALCULATORS SHOULD NOT BE USED, ALL QUESTIONS MUST BE ATTEMPTED,** and **ALL WORK MUST BE SHOWN** for each activity. If work is completed on a separate paper, please submit the paper(s) with the packet; preferably stapled.

Thank you for your cooperation,
The BCMS Math Department

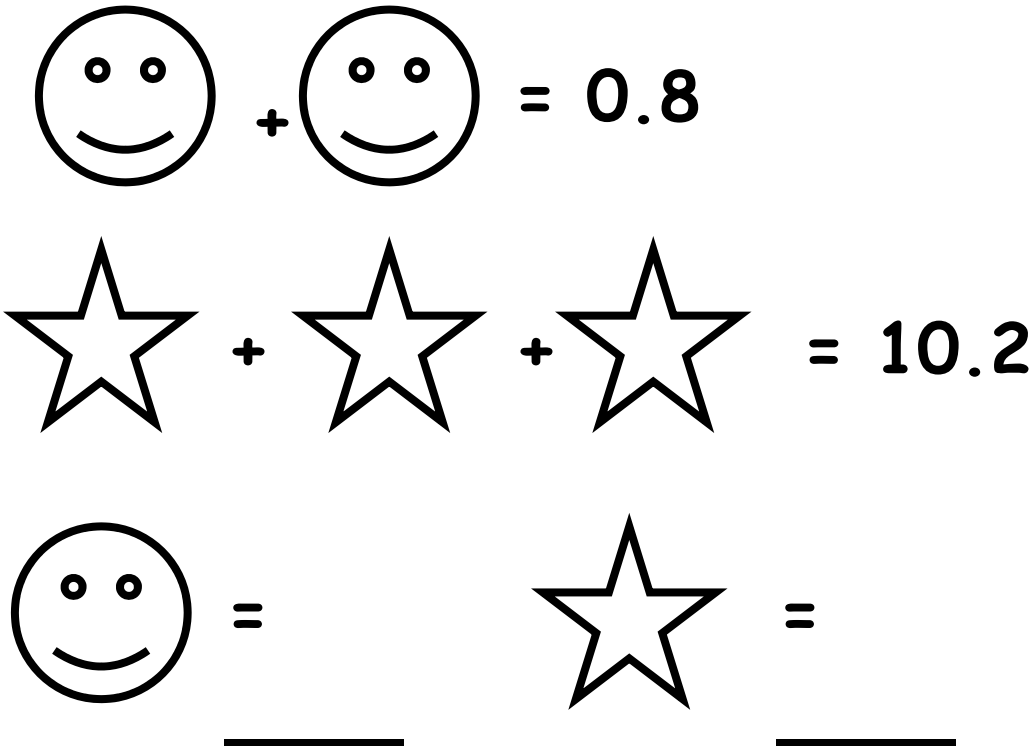
For students entering Algebra Fall 2019

BCMS Summer Mathematics Packet

Decimal Operations

Tasks: Each task requires students to use what they know of operations with fractions to determine the missing values.

Task #1:



Task #2:
Jen, Terry, Cheryl, Ben, and Aaron have spare change in their pockets. Each person has a different amount: $9.38, $7.52, $3.62, $4.73 and $1.27.

Together, Terry and Aaron have $10.65.
Together, Terry and Ben have $13.00.
Together, Cheryl and Aaron have $6.00.
Doubled, Cheryl will have $9.46

Jen has _____ Terry has _____ Cheryl has _____
Ben has _____ Aaron has _____

Need help?
https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-fractions-decimals

Fraction Operations

Directions: For each section a number bank is provided. Using the numbers from the bank only once, complete the missing parts of each equation.

Task #1

Number Bank for Task #1								
1	2	3	4	5	6	7	8	9

$$\frac{\square}{\square} \div \frac{\square}{\square} = 6 \qquad \frac{7}{\square} \times \frac{\square}{\square} = \frac{5}{2}$$

$$\frac{\square}{\square} \times \frac{6}{5} = \frac{1}{5}$$

Task #2

Number Bank for Task #2									
0	1	2	3	4	5	6	7	8	9

$$\frac{\square}{\square} + \frac{\square}{\square} = 3 \qquad \frac{\square}{\square} - \frac{\square}{20} = 0 \qquad \frac{\square}{\square} + \frac{4}{18} = 1$$

Need help?

https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-fractions-decimals

Order of Operations

When evaluating numeric expressions, we complete the mathematical operations in a set order: **Parenthesis, Exponents, Multiplication and Division, Addition and Subtraction** (**PEMDAS**). Use the order of operations to answer each question.

Example 1: Determine the smallest non-negative number that you can make from 2, 3, 5, 7, and 11. You may only use each operation (+, -, x, ÷) once.

Response: [(11 + 3) – (2 x 7)] / 5 = 0

Example 2: Using 1, 7, 8, 9, and 9 create a problem in which the answer equals 16. You may use operations more than once.

Response: (9 ÷ 9) x (7 + 8 + 1) = 16

1. Using 1, 3, 5, 9, and 9 create a problem in which the answer equals 5. You may use operations more than once.

2. Using 8, 11, 9, 1, and 8 create a problem in which the answer equals 2. You may use operations more than once.

3. Using 4, 16, 10, 24, and 25 create a problem in which the answer equals 1. You may use operations more than once.

Need help?
https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-factors-and-multiples/cc-6th-order-operations/v/introduction-to-order-of-operations

Laws of Exponents

Adding powers	$a^m a^n = a^{m+n}$
Multiplying powers	$(a^m)^n = a^{mn}$
Subtracting powers	$\frac{a^m}{a^n} = a^{m-n}$
Negative powers	$a^{-n} = \frac{1}{a^n}$
To the zero power	$a^0 = 1$

Exercises: Simplify the following problems using exponents (Do not multiply out).

EX #1: $2^3(2^7) = 2^{10}$ EX #2: $(2^3)^7 = 2^{21}$ EX #3: $2^7 \div 2^3 = 2^4$

1. $4^4(4^5) =$

2. $(4^4)^5 =$

3. $x^3y^7(x^4y^6) =$

4. $9^4(9^{-10}) =$

5. $9^4(9^{-10})\ 9^6 =$

6. $x^{21}y^4 \div x^3y^2 =$

For the next set, fill each blank with an exponent or exponents that would make the equation true.

7. $4^{\square}(4^5) = 4^{10}$

8. $(4^4)^{\square} = 4^{16}$

9. $x^{\square}(x^{\square}) = x^{30}$

10. $(x^{\square})^{\square} = x^{48}$

11. $9^{\square}(9^{\square})\ 9^{\square} = 9^{24}$

12. $((9^{\square})^{\square})^{\square} = 9^{24}$

13. For what values of n will $(2^n)^n < (2^n)(2^n)$? Give examples of those values in your explanation.

Need help?

https://www.khanacademy.org/math/algebra/exponent-equations/exponent-properties-algebra/v/exponent-properties-1

Perfect Squares Roots and Square Roots

Task #1: In this task you will be given clues about particular perfect squares and square roots. Using the clues name the perfect square.

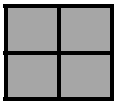
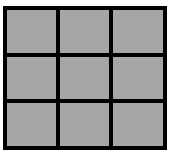
EXAMPLE: Doubled, my value is -12, but my product is the 36. What number am I? -6

1. Doubled, my value is 18, but my product is 81. What number am I? ____

2. Doubled, my value is 22, but my product is 121. What number am I? ____

3. Doubled, my value is 16, but my product is 64. What number am I? ____

Task #2: Complete the table below. In the table you must complete the area diagram, the equivalent expression, the exponent form and the value.

Area Model	Equivalent Expression	Exponential Form	Value
	2 x 2	2^2	4
			
	5 x 5		
			16
		6^2	

Integer Operations: Addition and Subtraction of Integers

Laws for Addition and Subtraction of Integers:

Ex #1:	4 + -3 = 4 - 3 = 1	Ex #2:	4 + -5 = 4 - 5 = -1
Ex #3:	-4 + -5 = -9	Ex #4:	-4 + 5 = 1
Ex #5:	4 - -5 = 4 + 5 = 9	Ex #6:	-4 - -5 = -4 + 5 = 1

Task: Determine the value (or values) of *n* that would satisfy the equation.
Example: *n* – 4 = a negative number.

Response: N must be a number less than 4. If n is 4 or more, the answer is not negative. For example 5 - 4 = +1 and 4 – 4 = 0. But if we use a number less than 4, it will be negative. For example 3 - 4 = -1 and -2 – 4 = -6.

1. *n* + 4 = a negative number.

2. 9 – *n* = a positive number.

3. For what values of *a* is a > a + a? In your answer give examples of values of *a* which make the inequality true.

4. For what values of *n* is 4 – n > n? In your answer give examples of values of *n* which make the inequality true.

Need help?
https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-negative-numbers

Integer Operations: Multiplication and Division of Integers

Laws for Addition and Subtraction of Integers:

Ex #1:	4(-3) = -12	Ex #2:	-4(-3) = 12
Ex #3:	-10 ÷ 5 = -2	Ex #4:	-10 ÷ -5 = 2

Task: Determine the values of *n* that would satisfy the equation.

Example: -6n = some positive number.

Response: In order for -6n to be a positive number, n must be any negative number. The product of two negatives is always positive. For example, -6(-2) = +12. If n is a positive number, the product would still be negative. Therefore, n must be negative to get a positive answer.

1. -4n = some negative number.

2. -4n = some positive number that is greater than 28.

3. 100 ÷ n = some negative number between -20 and -1

4. $(-3)^n$ = a positive number.

5. For what values of *a* is -2a > a? In your answer give examples of values of *a* that make the inequality true.

Need help?

https://www.khanacademy.org/math/cc-seventh-grade-math/cc-7th-negative-numbers

Solving Equations

Task #1: Solve the following problems. SHOW ALL WORK. Use a separate sheet of paper (if necessary) and staple to this page.

1. $-4h - 6 = 22$
2. $\frac{m}{-5} + 6 = -4$
3. $-25 = -4r + 5$
4. $6 = -7 + \frac{x}{-3}$
5. $5g - 3 = -12$

Task #2: For each equation, determine if the equation is always true, never true or sometimes true. If the equation is sometimes true, determine the numbers that make it true.

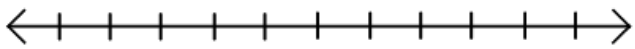
6. $6y + 5 = 4y + 5$
7. $5x + 8 = 8 + 5x$
8. $7p - 8 = 7p + 6$
9. $x^2 = 100$
10. $-2(6 - 10n) = 10(2n - 6)$
11. $7(1 - y) = -3(y - 2)$

Need Help?
https://www.khanacademy.org/math/cc-eighth-grade-math/cc-8th-solving-equations

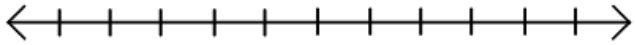
Inequalities

Task #1. Solve each inequality and then graph the solution set on the number line. Remember that when multiplying or dividing by negative numbers, you must reverse the inequality.

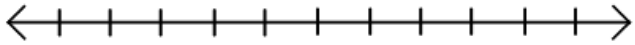
1. $13 < 9 + 2x$



2. $-2x + 5 \geq -12$



3. $\frac{1}{4}x + 9 < 2$



Task #2:

4. Given: $A > 0$ and $B < 0$. Is $A < A(B)$?

5. Given: $5 > 4$. For what values of x is $5x > 4x$?

Need Help?
https://www.khanacademy.org/math/algebra/linear_inequalities