Manhattan Center for Science and Mathematics

Scientia Potentia est-
Knowledge Itself is Power

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WITH + MATH I CAN

2017 Summer Break Packet for Students Entering Algebra I

Name: _____

DUE: THURSDAY, SEPTEMBER 7th 2017

Summer Break Packet Algebra I

Note to Student: You've learned so much in middle school! It is important that you keep practicing your mathematical knowledge over summer. In this packet, you will find topics and questions for you to work on. There are also links included in each section for you to visit if you are struggling or need a refresher to recall your knowledge on the material.

Directions:
Create a personal and fun math journal by stapling several pieces of paper together or use a notebook or binder with paper. Be creative and decorate the cover to show math in your world about how do you what do you think when you playing board and card games. This activity is a good way to reinforce basic computation skills and mathematical reasoning.

Each question topic will be its own journal entry.

- The journal entry should:
  - Have the problem number.
  - Have a clear and complete answer that explains your thinking.
  - Be neat and organized.

When you have completed your journal, copy the supply list that you are required to have to begin school at MCSM. Have your parent/guardian sign this page of the journal.

To exercise your brain, trying to play board and card games at least once a week. Some suggested games to play are: Monopoly, Chess, War, Battleship, Mancala, Dominoes, Phase 10, Yahtzee, 24 Challenge, Sudoku, Connect Four, and Risk.

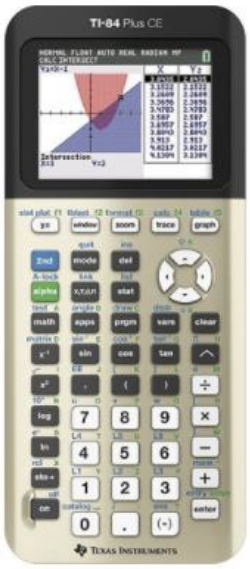
Don't forget to bring your journal with all of your math work in it on the first day of school. Your new teacher will be so proud of your summer math work!

Summer Break Packet Algebra I

Dear Guardians / Parents,

Please be advised that your child needs to have the following tools for their math class in September.

Required Math equipment and supplies for all students



1. Graph paper
2. Loose leaf paper with binder
3. Ruler / straight edge
4. Colored Pens
5. Pencil
6. Graphing Calculator: TI 84+ Family (Plus CE recommended)
   This can be purchased at:
   - Jet.com
   - Staples
   - Office Max
   - Target
   - Walmart
   - Amazon
7. Folders

For Geometry class, students need the following additional equipment:

8. Compass
9. Protractor
10. Colored Pencils

Sincerely,

Mathematics Department

Operations with integers

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/core-algebra-foundations-negative-numbers/v/adding-and-subtracting-negative-number-examples

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/core-algebra-foundations-negative-numbers/v/multiplying-positive-and-negative-numbers

Simplify the following:

1. a. (-1)+(-4) b. 4 + (-6) c. 2 - 5 d. -6 – (-3)

2. a. (-3)(-16) b. (5)(-20) c. $\frac{-100}{10}$ d. $\frac{-45}{9}$

Simplifying Fractions

3. Reduce the following fractions:

a. $\frac{4}{6}$ b. $\frac{-4}{-9}$ c. $\frac{15}{25}$ d. $\frac{4}{12}$

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/algebra-foundations-decimal-operations/e/converting_fractions_to_decimals

4. Rename the following fractions as a decimal:

a. $\frac{1}{4}$ _____ b. $\frac{3}{4}$ _____ c. $\frac{1}{2}$ _____

d. $\frac{3}{2}$ _____ e. $\frac{1}{8}$ _____ d. $\frac{3}{8}$ _____

Converting Decimals to Fractions

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/algebra-foundations-decimal-operations/v/converting-decimals-to-fractions-1-ex-3

5. ***Rename the following decimals as fractions in reduced form:***

a. 0.02 _____ b. 0.6 _____ c. 1.2 _____ d. 0.75 _____

Percentages

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/algebra-foundations-decimal-operations/v/finding-percentages-example

6. ***Change the following decimals or fractions to a percent:***

a. .25_____ b. - _____ c. .9 _____ d. — _____ e. - _____

Change the following percents to decimals:

d. 40% _____ e. .5% _____ f. 120% _____

7. ***Rounding:***

Round to the nearest whole number

a. 41.803 b. 119.63 c. 20.05 d. 3.45

Round to the nearest tenth

e. 33.335 f. 1.861 g. 99.96 h. 103.103

Round to the nearest whole number

i. 69.713 j. 5.569 k. 609.909 l. 247.989

Evaluating Expressions:

https://www.khanacademy.org/math/algebra/introduction-to-algebra/variable-and-expressions/v/evaluate-a-formula-using-substitution

8. ***Evaluate the following expressions and then simplify. Let a=8 and b=-2.***

a. ab b. $a-b$ c. $\frac{a}{b}$ d. $-2a^2 - a - 4$

Writing Algebraic expressions:

https://www.khanacademy.org/math/algebra/introduction-to-algebra/writing-expressions-tutorial/v/writing-expressions-1

9. ***Write the following sentences as algebraic expressions:***

a. the sum of 3 and a number x.

b. 3 less than a number y.

c. the product of 6 and the sum of five and a number.

Combining Like Terms

https://www.khanacademy.org/math/algebra/introduction-to-algebra/manipulating-expressions/v/combining-like-terms-1

10. ***Simplify the following expressions:***

a. 7a + 2a b. 8x – 10x c. 6ab + 3 ba d. 5c – 6c + 8c – 9c

Order of Operations

https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/algebra-foundations-order-of-operations/v/introduction-to-order-of-operations

11. ***Simplify the following expressions by applying the order of operations:***

a. $2 + 7 \cdot 4$ b. $8 - 35 \div 7$ c. $6(2) + 12 \div 3(2)$

d. $4(2 - 3(4 + 5(2 - 5) + 5))$ e. $\frac{32-4^2}{2-4}$ f. $(-3)^2$ g. -3^2

f. Add parentheses to make the sentence true: $48 \div 2 \cdot 4$

Simplifying Absolute Value Expressions

https://www.khanacademy.org/math/pre-algebra/negatives-absolute-value-pre-alg/abs-value-pre-alg/v/absolute-value-of-integers

12. The absolute value of a number is its distance from 0 on a number line. Find the absolute value of each of the following:

a. $|-5|$ b. $|2 - 5|$ c. $|-5 - 3|$ d. $|-5 - (-6)|$