7th

Summer Learning

Dear Middle School Student,

Summer learning is a way to keep your math skills polished so that you are ready for new learning in the fall. Learning is fun!! This packet is not meant to stress you out or ruin your summer. Learning new concepts in math will be much easier if you master the basics. For all grades there is one concept that must be mastered and that is multiplication tables. It is up to you on how you do this, but you must know your multiplication facts up to 12 by the first day of school. I have included some timed tests, but you can go online, make flash cards, or have family and friends drill you, anything to help you with this concept.

I also want you practicing all operations with fractions and decimals. For 7^{th} and 8^{th} grade, in addition to the basics, you will be working on equations, order of operations and of course all operations with integers.

Active learning is the process of actively seeking out information. If you know there are concepts that you need help on, DON'T WAIT for someone to tell you to practice!!! There are many websites to practice on which I have included.

The pages are to be completed by the first day of school. Have a wonderful summer.

Mrs. Miller

Math Vocabulary:
http://www.teachers.ash.org.au/jeather/maths/dictionary.html

Multiplication facts:
http://www.multiplication.com/interactive_games.htm
Scroll down to find a game that looks fun for you.
http://www.aplusmath.com/games/matho/MultMatho.html
http://www.gamequarium.com/multiplication.html
http://www.coolmath-games.com/Timernator/Timernator-multiplication.html
FACTORS:
http://www.aaamath.com/g57f-findafactor.html
MULTIPLES:
http://www.mathgoodies.com/lessons/vol3/lcm.html

6th and 7th grade math games
http://www.softschools.com/grades/6th_and_7th.jsp

Math Videos:
http://www.mathplayground.com/mathvideos.html

Fractions:
http://www.coolmath.com/fractions/index.html
http://www.visualfractions.com/
http://www.aaamath.com/fra.html
http://www.toonuniversity.com/flash.asp?err=198

Least Common Multiple (LCM):
http://www.math.com/school/subject1/lessons/S1U3L3GL.html
http://www.webmath.com/intlcm.html
http://www.purplemath.com/modules/lcm_gcf.htm
http://www.math-magic.com/misc/lcm.htm
http://www.mathgoodies.com/lessons/vol3/lcm.html

Greatest Common Factor (GCF):
http://www.purplemath.com/modules/lcm_gcf.htm
http://www.jamit.com.au/htmlFolder/app1004.html
http://www.math.com/school/subject1/lessons/S1U3L2GL.html

Decimals:

http://www.coolmath.com/decimals/index.html
http://www.aaaknow.com/dec.htm

Math Operations with Integers:

http://www.aaamath.com/sub65-sub-negative.html
Scroll down to games to practice
http://amby.com/educate/math/integ_x1.html
http://www.math.com/school/subject1/lessons/S1U1L13GL.html
http://www.math.com/students/homework.html
http://www.thatquiz.org/tq/practice.html?arithmetic
Click negatives on the left side bar

Solving single step and multiple step equations:

http://www.coolmath.com/algebra/algebra-practice-solving.html
http://regentsprep.org/Regents/math/solveq/LSolvEq.htm
http://www.math.com/practice/Algebra.html
http://www.aaamath.com/equ.html

Prime number practice:

http://www.aaamath.com/B/g63a_px1.htm

Practice with Prime factorization:

http://amby.com/educate/math/2-1_fact.html

F	3	5	*Sixty multiplication facts*	THE MAD MINUTE

6 ×7	9 ×2	3 ×7	7 ×7	1 ×6	2 ×7	9 ×4	3 ×5	4 ×5	6 ×3
3 ×9	5 ×8	2 ×6	9 ×9	9 ×0	9 ×5	8 ×8	9 ×7	5 ×9	5 ×1
2 ×8	4 ×7	8 ×9	3 ×6	8 ×4	0 ×8	6 ×6	6 ×9	1 ×8	8 ×3
7 ×4	5 ×5	7 ×3	8 ×5	7 ×8	3 ×4	9 ×6	6 ×8	6 ×5	8 ×6
4 ×9	4 ×8	7 ×6	2 ×0	7 ×9	4 ×2	8 ×7	4 ×3	6 ×4	9 ×3
9 ×1	5 ×4	5 ×6	2 ×9	4 ×4	7 ×5	2 ×5	5 ×7	3 ×8	0 ×5

Review of Operations on Integers

In Book 1 you were told about numbers called integers — positive integers, negative integers and zero. You learned how to add, subtract, multiply and divide integers.

Adding Integers: Think of positive integers as gains, negative integers as losses and zero as showing no change. To add two or more integers, just think of the integer which shows the overall change.

Subtracting Integers: Think of the problem as an adding problem — only be sure to add the opposite of the number you are subtracting.

Multiplying and Dividing Integers: Break the problem down into two parts. Find the amount by multiplying or dividing. The sign will be positive if you are multiplying or dividing two numbers with the same sign. The sign will be negative if the two numbers you are multiplying or dividing have different signs.

Below are some problems for you to do. Some are adding, some are subtracting, some are multiplying and some are dividing — so *be careful* . . .

$-5 + -3 =$	$-6 \cdot -9 =$	$-8 - 8 =$	$-8 \cdot 1 =$
$-8 \cdot 5 =$	$4 + -14 =$	$-5 - -5 =$	$-10 \cdot 0 =$
$5 \cdot -7 =$	$-24 \div 3 =$	$-18 \div -9 =$	$-3 - 3 =$
$-6 - 4 =$	$-5 \cdot -5 =$	$4 \cdot 0 =$	$8 - 8 =$
$20 \div -2 =$	$7 \cdot 7 =$	$-8 + 8 =$	$0 \div 6 =$
$10 + -16 =$	$14 + -14 =$	$1 \cdot 7 =$	$-(-3) =$
$(10)(-16) =$	$(-3)(3) =$	$0 \cdot -3 =$	$-(5) =$
$5 - 14 =$	$14 - 6 =$	$-5 + -5 =$	$-(-9) =$
$-1 \cdot 6 =$	$1 \cdot 1 =$	$(-8)(-1) =$	$-(0) =$

These problems take more than one step:

$5 \cdot 3 - 2 =$	$4 + (6 - 7) =$	$-8 + 3(-2) =$
$5 \cdot (3 - 2) =$	$4 + 6 - 7 =$	$(-8 + 3)(-2) =$

Follow Your Orders

Name _____

Simplify each of the following math expressions using the order of operations.

Order of Operations

1. Do whatever is inside the parentheses first.
2. Next, do multiplication and division from left to right.
3. The last step is to do addition and subtraction from left to right.

1. 9 + 5 − 3 = _____

2. 5 × 8 − 4 = _____

3. 8 − 3 × 2 = _____

4. 5 × 9 + 4 = _____

5. 5 + 9 × 4 = _____

6. 6 ÷ 3 + 4 = _____

7. 5 + 4 × 3 = _____

8. 6 + 4 × 3 = _____

9. 15 ÷ 3 − 2 = _____

10. 5 + 5 − 3 = _____

11. 18 ÷ 6 + 5 = _____

12. 6 + 3 × 2 = _____

13. 4 × 5 + 5 = _____

14. 18 − 5 ÷ 5 = _____

15. 20 + 4 ÷ 2 = _____

16. 4 × 3 + 6 = _____

17. 15 − 4 × 3 = _____

18. 5 × 2 ÷ 5 = _____

19. 18 + 2 × 3 = _____

20. 6 × 3 − 4 = _____

Order of operations

That's Equivalent

Name _____

Complete the table below so that each row shows three representations of the same value.

	Fraction	Decimal	Percent
1.	$\frac{1}{4}$	0.25	25%
2.		0.5	50%
3.	$\frac{7}{10}$		
4.			75%
5.		0.8	
6.	$\frac{2}{5}$		
7.	$\frac{1}{8}$		
8.			37.5%
9.		0.9	
10.		0.625	

Calculate equivalent fractions, decimals, and percents

Math Test

Name ____________________

Fill in the circle next to the correct answer. Simplify your answer if possible.

1. $\frac{3}{5} + \frac{1}{5} =$ ______

   Ⓐ $\frac{4}{10}$ Ⓒ $\frac{4}{5}$

   Ⓑ $\frac{2}{5}$ Ⓓ $\frac{3}{5}$

2. $\frac{3}{4} + \frac{5}{6} =$ ______

   Ⓐ $1\frac{7}{12}$ Ⓒ $\frac{4}{3}$

   Ⓑ $\frac{8}{10}$ Ⓓ $\frac{4}{5}$

3. $3\frac{1}{3} + 2\frac{3}{7} =$ ______

   Ⓐ $5\frac{4}{7}$ Ⓒ $5\frac{4}{10}$

   Ⓑ $5\frac{16}{21}$ Ⓓ $5\frac{2}{5}$

4. $5\frac{3}{4} + 4\frac{1}{2} =$ ______

   Ⓐ $9\frac{1}{4}$ Ⓒ $9\frac{2}{3}$

   Ⓑ $9\frac{4}{6}$ Ⓓ $10\frac{1}{4}$

5. $\frac{6}{7} - \frac{5}{7} =$ ______

   Ⓐ $\frac{1}{7}$ Ⓒ $\frac{2}{7}$

   Ⓑ 1 Ⓓ $\frac{11}{7}$

6. $5\frac{2}{3} - 2\frac{2}{9} =$ ______

   Ⓐ $3\frac{4}{6}$ Ⓒ 3

   Ⓑ $3\frac{4}{9}$ Ⓓ $3\frac{1}{3}$

7. $5\frac{1}{3} - 2\frac{2}{3} =$ ______

   Ⓐ $3\frac{2}{3}$ Ⓒ $2\frac{1}{3}$

   Ⓑ $3\frac{1}{3}$ Ⓓ $2\frac{2}{3}$

8. $4\frac{1}{3} - 2\frac{6}{7} =$ ______

   Ⓐ $2\frac{10}{21}$ Ⓒ $1\frac{10}{21}$

   Ⓑ $2\frac{5}{4}$ Ⓓ $2\frac{5}{21}$

9. Sally has two papers that she wants to tape end to end. She hopes that the total length is at least $24\frac{1}{2}$ inches long. One piece of paper is $12\frac{3}{4}$ inches long and the other one is $11\frac{7}{8}$ inches long. Will the papers taped together be long enough? Why or why not?

   ____

   ____

   ____

10. Jimmy started with a string that was $25\frac{1}{3}$ feet long. He cut off a piece to give to his friend that was $6\frac{3}{4}$ feet long. How much string does Jimmy have left?

   ____

   ____

   ____

Demonstrate addition and subtraction of fractions including mixed numbers and unlike denominators

Math Test

Name _____

Fill in the circle next to the correct answer. If possible, simplify each fraction.

1. $\frac{1}{2} \times \frac{1}{3} =$ _____

Ⓐ $\frac{1}{6}$ Ⓒ $\frac{2}{5}$

Ⓑ $\frac{1}{2}$ Ⓓ $\frac{1}{3}$

2. $\frac{3}{5} \times \frac{2}{3} =$ _____

Ⓐ $1\frac{1}{5}$ Ⓒ $\frac{2}{5}$

Ⓑ $1\frac{4}{15}$ Ⓓ $2\frac{1}{2}$

3. $\frac{4}{5} \times \frac{5}{8} =$ _____

Ⓐ $\frac{9}{40}$ Ⓒ $\frac{1}{10}$

Ⓑ $\frac{1}{2}$ Ⓓ $\frac{1}{8}$

4. $2\frac{1}{2} \times 3 =$ _____

Ⓐ $6\frac{1}{2}$ Ⓒ $21\frac{1}{2}$

Ⓑ $3\frac{1}{2}$ Ⓓ $7\frac{1}{2}$

5. $4 \times 5\frac{1}{3} =$ _____

Ⓐ $20\frac{1}{3}$ Ⓒ $5\frac{1}{3}$

Ⓑ $21\frac{1}{3}$ Ⓓ $1\frac{1}{3}$

6. $3\frac{1}{3} \times 1\frac{1}{2} =$ _____

Ⓐ 5 Ⓒ 4

Ⓑ $3\frac{1}{6}$ Ⓓ $4\frac{1}{5}$

7. $7\frac{1}{3} \times 3\frac{3}{4} =$ _____

Ⓐ $27\frac{1}{4}$ Ⓒ $27\frac{1}{2}$

Ⓑ $21\frac{1}{4}$ Ⓓ $21\frac{4}{7}$

8. $1\frac{5}{6} \times 1\frac{1}{4} =$ _____

Ⓐ $\frac{11}{24}$ Ⓒ $1\frac{5}{24}$

Ⓑ $2\frac{5}{24}$ Ⓓ $2\frac{7}{24}$

9. Show all the steps when you multiply the following problem.

$3\frac{3}{4} \times 3 =$ _____

10. Juan needs to find the area of a picture he plans to paint. The canvas is $9\frac{1}{3}$ inches across by $12\frac{1}{4}$ inches high. He knows that he has to multiply the length by the width to get the area. What is the area of the canvas?

_____

_____

Demonstrate multiplication of fractions including mixed numbers

Equations

Here is an equation in x: $10 + x = 3$

We can **solve** this equation by substituting different numbers for x. If we find a number that works, then we have found a **solution** to the equation. The only number that will work in this equation is -7. We can show the solution by writing

$$x = -7$$

Solve each equation by substituting different numbers until you find a solution.

$5 + y = 9$ $y = 4$	$z + 1 = 10$	$3 + w = 4$	$a + 15 = 20$
$10 + x = 17$	$4 + t = 4$	$-6 + r = -16$	$8 + x = 6$
$c + 6 = 5$	$-5 + y = -1$	$c + -8 = -8$	$17 + a = 23$
$-4 + a = -9$	$-3 + m = -13$	$x + -2 = 5$	$4 + e = -4$

Joe picked a number and added 7 to it. The answer was 11. What was the number?

Equation: $x + 7 = 11$

Solution: $x = 4$

Jo picked a number and added 3 to it. The answer was 12. What was the number?

Equation:

Solution:

Chip thought of a number. He added 9 to it. The answer came out to be 14.
What was Chip's number?

Equation:

Solution:

Solve each equation.

$6x = 18$ $x = 3$	$4s = 24$	$5x = 30$	$9b = 72$
$4y = 8$	$5x = 25$	$3x = -12$	$5s = 0$
$6t = 6$	$-4n = -20$	$8c = -8$	$-10e = -30$
$-7x = -21$	$-2x = 10$	$20x = 80$	$-7m = 7$

Robin multiplied 8 times a number. The answer was 48. What was Robin's number?

Equation:

Solution:

Jerry thought of a number. Then he multiplied it by 5. The answer came out to be 45. What was Jerry's number?

Equation:

Solution:

Jennifer started out with 8 dollars. Then she got some more money for her birthday. She ended up with 15 dollars. How much did she get for her birthday?

Equation:

Solution:

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7 times some number is 28. What is the number?

Equation:

Solution:
