Name: _____

Rising 6th Grade Summer Math Packet

Next year we will explore many new mathematical topics together. This will be a challenging journey, but one in which you will learn a lot. To be prepared for math next year, I encourage you to keep your skills sharp this summer by completing this summer packet.

Please bring the completed packet to your teacher on the first full day of school. This will be your first grade in 6th grade math.

Below you will find directions for completing the packet.

Directions:

- Please write your first and last name on the packet.
- All work is to be neat and completed in pencil without the use of a calculator.
- Keep your packet in a folder and in a safe place to help you stay organized.
- I suggest that you do one page of multiple-choice questions and one page of basic math skills each week.
- You should complete the problems on each page by showing your work in the space provided.
- Please do not skip problems. If you find a problem that you are unfamiliar with or have forgotten, look for resources online: IXL or Khan Academy.
- Once you have solved a problem, ask yourself, "Does my answer make sense?"
- IXL will be available as a resource throughout the summer. You will continue to use your current IXL username and password.

That "sums" it up! Have a great summer! See you in August!

Summer Packet - 5th into 6th grade Name _____

Addition
Find the sum of the two numbers in each problem. Show all work.

Example:

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ \ } \\ 448 \\ +\ 188 \\ \hline 636 \end{array}$$

1. $\begin{array}{r} 652 \\ +\ 345 \\ \hline \end{array}$

2. $\begin{array}{r} 203 \\ +\ 525 \\ \hline \end{array}$

3. $\begin{array}{r} 726 \\ +\ 268 \\ \hline \end{array}$

Decimal Addition:
Remember to line up the decimals before adding. Bring the decimal straight down in your answer.

4. $\begin{array}{r} 7.75 \\ +\ 1.46 \\ \hline \end{array}$

5. 51.4 + 2.86

6. .1274 + 8.25

Subtraction
Find the difference between the two numbers in each problem. Show all work.

Example:

$$\begin{array}{r} {\scriptstyle 3\ 13\ \ } \\ 7\ \cancel{4}\ \cancel{3} \\ -\ 2\ 1\ 8 \\ \hline 5\ 2\ 5 \end{array}$$

7. $\begin{array}{r} 407 \\ -\ 198 \\ \hline \end{array}$

8. $\begin{array}{r} 7{,}007 \\ -2{,}426 \\ \hline \end{array}$

9. $\begin{array}{r} 3{,}414 \\ -1{,}218 \\ \hline \end{array}$

Decimal Subtraction:
Remember to line up the decimals before subtracting. Bring the decimal straight down in your answer.

10. $\begin{array}{r} 338.38 \\ -\ 149.27 \\ \hline \end{array}$

11. 80.401 - 44.23

12. 75.89 - 9.4

Multiplication
Find the product of the two numbers in each problem. Show all work.

Example:

$$\begin{array}{r} 54 \\ \times\ 16 \\ \hline 324 \\ +540 \\ \hline 864 \end{array}$$

13.
$$\begin{array}{r} 65 \\ \times\ 4 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 42 \\ \times\ 8 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 84 \\ \times\ 39 \\ \hline \end{array}$$

Decimal Multiplication:
Multiply as you would with whole numbers. Count the decimal places in each factor. The product (answer) has the same number of decimal places.

16.
$$\begin{array}{r} .13 \\ \times\ 70 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 5.1 \\ \times\ 2 \\ \hline \end{array}$$

18.
$$\begin{array}{r} .108 \\ \times\ 2.5 \\ \hline \end{array}$$

Division
Find the quotient in each problem. If there is a remainder, state the remainders as R=___. Show all work. Feel free to use a separate sheet of paper.

19. $7\overline{)591}$

20. $12\overline{)264}$

21. $43\overline{)2815}$

Decimal Division:
If the divisor (outside number) is a decimal, you must move the decimal point (using multiplication) to the right until it becomes a whole number. Then, move the decimal in the dividend (inside number) the same number of times. Divide to find your answer (quotient). Then, move the decimal straight up from the dividend to the quotient. Remember, no remainders.

$$\begin{array}{r} quotient \\ divisor\overline{)\,dividend} \end{array}$$

22. $3\overline{)31.8}$

23. $.5\overline{)7.45}$

24. $.12\overline{)12.24}$

Rounding
Underline the given place value. Look to the right. If this digit is 5 or greater, increase the underlined digit by 1. If the digit to the right is less than 5, keep the underlined digit the same.

Round to the nearest...
hundredth
0.547 → 0.55

Round to the nearest....

25. tenth
0.3479

26. hundredth
0.7553

27. whole number
3.268

28. ten
162.21

29. thousandth
0.0036

30. hundred
990.54

Compare using <, >, or =
1.2 ◯ 1.20 1.2 = 1.20

Compare the decimals.

31. 0.205 ◯ 0.21

32. 1.03 ◯ 0.03

33. 0.04 ◯ 0.050

34. 0.1 ◯ 0.1000

35. 0.52 ◯ 0.500

36. 0.41 ◯ 0.405

Prime Number: A whole number greater than 1 that has only two factors, 1 and itself.
Examples: 2, 3, 5, 7, 11, 13, 17, and 19 are all prime numbers.

Composite Number: A whole number greater than 1 that has more than two factors.
Example: 8 is a composite number since its factors are 1, 2, 4, 8.

Determine if the following numbers are prime or composite. If the numbers are composite, please list all of the factors.

37. 27: _____

38. 39: _____

39. 43: _____

40. 49: _____

Exponents
A way to show repeated multiplication by the same factor is to use an exponent. In this example: $2^3 = 2 \times 2 \times 2 = 8$. The small raised three is the exponent. It tells how many times the number 2, called the base, is multiplied by itself.

Solve the following expressions by writing the expanded notation (repeated multiplication) and find the value.

41. 6^2 42. 2^6 43. 3^4

44. eight squared 45. five cubed

Greatest Common Factor
The greatest factor that two or more numbers have in common (GCF).

1. List all the factors of **four** in order
2. List all the factors of **twenty** in order
3. List the common factors
4. Write the greatest common factor

Finding Common Factors:
4: **1, 2, 4**
20: **1, 2, 4, 5, 10, 20**
Common Factors: **1, 2, 4** GCF= **4**

List all the factors for each number. Circle the common factors.

46. 18 : _____

30 : _____

Common Factors: _____ Greatest Common Factor: _____

47. 60 : _____

45 : _____

Common Factors: _____ Greatest Common Factor: _____

48. 23: _____

29: _____

Common Factors: _____ Greatest Common Factor: _____

49. 56: _____

72: _____

Common Factors: _____ Greatest Common Factor: _____

Least Common Multiple
The smallest nonzero multiple that two or more numbers have in common.

1. List the first 6 multiples of 4
2. List the first 6 multiples of 6
3. List the common multiples
4. Write the least common multiple.

Finding Common Multiples:
4: **4, 8, 12, 16, 20, 24**
6: **6, 12, 18, 24, 30, 36**
Least Common Multiple= 12

50. 8 : _____

12 : _____

Common Multiples: _____Least Common Multiple: _____

51. 7 : _____

11 : _____

Common Multiples: _____Least Common Multiple: _____

52. 25 : _____

10 : _____

Common Multiples: _____Least Common Multiple: _____

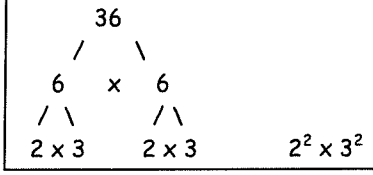
53. 24 : _____

36: _____

Common Multiples: _____Least Common Multiple: _____

Prime Factorization is a composite number renamed as a product of prime numbers. You may make a factor tree to find the answer. Put final answer in exponent form.

Find the prime factorization of 36.



$2^2 \times 3^2$

54.

180

55.

525

56.

91

57.

48

Comparing Fractions
Compare each pair of numbers. Write the correct comparison symbol (<, >, =) in each circle. Make sure you have common denominators before comparing numerators.

Example:

$\frac{1}{3}$ ◯ $\frac{3}{4}$

$\downarrow$ $\downarrow$

$\frac{4}{12}$ $\frac{9}{12}$

58. $\frac{3}{8}$ ◯ $\frac{5}{8}$

59. $\frac{3}{4}$ ◯ $\frac{3}{8}$

60. $\frac{1}{2}$ ◯ $\frac{4}{8}$

61. $\frac{3}{7}$ ◯ $\frac{1}{4}$

62. $\frac{3}{5}$ ◯ $\frac{5}{6}$

63. $\frac{7}{8}$ ◯ $\frac{3}{4}$

Ordering Fractions

Order the following fractions from **least to greatest**.

64. $\frac{3}{8}$ $\frac{5}{8}$ $\frac{4}{8}$ $\frac{2}{8}$ $\frac{7}{8}$

65. $\frac{1}{5}$ $\frac{4}{5}$ $\frac{1}{10}$ $\frac{6}{10}$ $\frac{7}{10}$

66. $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{6}$ $\frac{1}{3}$ $\frac{1}{5}$

67. $\frac{1}{2}$ $\frac{5}{16}$ $\frac{30}{64}$ $\frac{3}{8}$ $\frac{9}{32}$

Order of Operations
Solve the following problems. Show your work. Be sure to follow the order of operations.

Parenthesis
Exponents
Multiplication or Division: Which ever comes first from left to right.
Addition or Subtraction: Which ever comes first from left to right.

Example: $8 - 4 \div 2 + 2 =$
$8 - 2 + 2 =$
$6 + 2 =$
8

68. $15 \times 8 - 3 =$

69. $36 \div 4 \times 3 =$

70. $(30 + 8) \times 6 - 1 =$

71. $(30 + 8) \times (6-1) =$

72. $(29 - 18) + 14 \div 2 + 6 =$

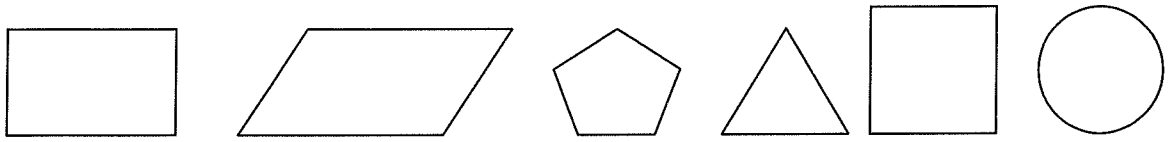
73. $64 \div 8 \times 2$

74. $36 - 5 (16 - 11) =$

75. $25 + 18 \div 6 - 1 =$

76. $24 + 6^2 - 1^4 =$

Geometry-Who am I?
Use the following shapes to answer the questions below.



77. I am a 2 dimensional shape that has four sides. I have four 90 degree angles. I have two sets of parallel lines. I also have two sides that are one length, and my other two sides are a different length.

Who am I?_____

78. I am a 2 dimensional shape that has three acute angles. All of my sides are the same length. I have no parallel sides.

Who am I? _____

79. I am a 2 dimensional shape that has four sides. I have two obtuse angles and two acute angles. I have two different sets of parallel sides. I also have two sides that are one length, and my other two sides are a different length.

Who am I? _____

80. I am a 2 dimensional shape that has 5 obtuse angles. I do not have any sides that are parallel.

Who am I? _____

81. I am a 2 dimensional shape that has four 90 degree angles. I have four sides that are all the same length. I have two different sets of parallel lines.

Who am I? _____

82. I am a 2 dimensional shape. My perimeter is also known as a circumference.

Who am I? _____

Simply Fractions
Simplify the following fractions. If the fractions are improper, change them to mixed numbers then simplify.

Example: $\frac{10 \div 5}{25 \div 5} = \frac{2}{5}$

83. $\frac{14}{28}$

84. $\frac{15}{55}$

85. $\frac{12}{51}$

86. $\frac{34}{48}$

87. $\frac{17}{4}$

88. $\frac{80}{25}$

Adding Fractions and Mixed Numbers
Add the following fractions. Make sure you have common denominators before adding. Remember, you only add the numerator (top number) and you keep the denominator (bottom number) the same! Simplify your final answers.

Example:

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

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

89. $\frac{6}{10} + \frac{3}{10} =$

90. $2\frac{3}{8} + 1\frac{2}{8} =$

91. $\frac{1}{9} + \frac{5}{6} =$

92. $\frac{1}{12} + 1\frac{2}{3} =$

Subtracting Fractions

Subtract the following fractions. Make sure you have common denominators before subtracting. Remember, you only subtract the numerator (top number) and you keep the denominator (bottom number) the same! Simplify your final answers.

Example:

$$\frac{5}{6} - \frac{1}{3} =$$

$$\frac{5}{6} - \frac{2}{6} = \frac{3}{6} = \frac{1}{2}$$

93. $\frac{5}{6} - \frac{3}{6} =$

94. $2\frac{8}{12} - 1\frac{3}{12} =$

95. $\frac{7}{10} - \frac{2}{4} =$

96. $3\frac{4}{5} - \frac{1}{4} =$

Multiplying Fractions

Multiply the following fractions. Multiply the numerators; then multiply the denominators. Simplify, if necessary.

Example:

$$\frac{3}{5} \times \frac{5}{9} = \frac{15}{45} = \frac{1}{3}$$

97. $\frac{3}{4} \times \frac{1}{3} =$

98. $\frac{2}{3} \times \frac{5}{8} =$

99. $\frac{1}{3} \times \frac{2}{5} =$

100. $\frac{7}{8} \times 2 =$

Dividing Fractions

Divide the following fractions. Rewrite your problem so that you have the first fraction times the reciprocal of the second fraction. Multiply the numerators; then multiply the denominators. Simplify, if necessary.

Example:

$$\frac{2}{3} \div \frac{4}{5} = \frac{2}{3} x \frac{5}{4}$$

101. $\frac{5}{6} \div \frac{1}{3} =$

102. $\frac{1}{8} \div \frac{3}{4} =$

103. $3 \div \frac{9}{10} =$

104. $\frac{2}{5} \div 10$

Week 1: Fifty Multiplication Facts: 0-5

THE MAD MINUTE

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

Week 2: Fifty Multiplication Facts: 6

THE MAD MINUTE

0 x 6	6 x 2	6 x 5	6 x 11	6 x 6	7 x 6	3 x 6	6 x 4	6 x 8	9 x 6
8 x 6	6 x 3	6 x 0	6 x 9	6 x 7	6 x 6	1 x 6	2 x 6	5 x 6	4 x 6
6 x 2	6 x 5	6 x 6	6 x 10	7 x 6	4 x 6	3 x 6	6 x 8	9 x 6	11 x 6
6 x 6	4 x 6	6 x 2	5 x 6	0 x 6	6 x 7	3 x 6	6 x 8	6 x 9	1 x 6
9 x 6	10 x 6	1 x 6	5 x 6	8 x 6	7 x 6	6 x 1	6 x 6	6 x 4	6 x 3

Week 3: Fifty Multiplication Facts: 7

THE MAD MINUTE

0 x 7	7 x 2	7 x 5	7 x 11	7 x 7	7 x 6	3 x 7	7 x 4	7 x 8	9 x 7
8 x 7	7 x 3	7 x 0	7 x 9	6 x 7	7 x 7	1 x 7	2 x 7	5 x 7	4 x 7
7 x 2	7 x 5	7 x 7	7 x 10	7 x 6	4 x 7	3 x 7	7 x 8	9 x 7	11 x 7
7 x 7	4 x 7	7 x 2	5 x 7	0 x 7	6 x 7	3 x 7	7 x 8	7 x 9	1 x 7
9 x 7	10 x 7	1 x 7	5 x 7	8 x 7	7 x 11	7 x 1	7 x 7	7 x 4	7 x 3

Week 4: Fifty Multiplication Facts: 8

THE MAD MINUTE

0 x 8	8 x 2	8 x 5	8 x 11	8 x 8	8 x 6	3 x 8	8 x 4	7 x 8	9 x 8
8 x 7	8 x 3	8 x 0	8 x 9	6 x 8	8 x 8	1 x 8	2 x 8	5 x 8	4 x 8
8 x 2	8 x 5	8 x 8	8 x 10	8 x 6	4 x 8	3 x 8	7 x 8	9 x 8	11 x 8
8 x 8	4 x 8	8 x 2	5 x 8	0 x 8	6 x 8	3 x 8	7 x 8	8 x 9	1 x 8
9 x 8	10 x 8	1 x 8	5 x 8	8 x 7	8 x 11	8 x 1	8 x 8	8 x 4	8 x 3

Week 5: Fifty Multiplication Facts: 9

THE MAD MINUTE

0 x 9	9 x 2	9 x 5	9 x 11	9 x 9	9 x 6	3 x 9	9 x 4	7 x 9	9 x 8
9 x 7	9 x 3	9 x 0	8 x 9	6 x 9	9 x 9	1 x 9	2 x 9	5 x 9	4 x 9
9 x 2	9 x 5	9 x 9	9 x 10	9 x 6	4 x 9	3 x 9	7 x 9	9 x 8	11 x 9
9 x 9	4 x 9	9 x 2	5 x 9	0 x 9	6 x 9	3 x 9	7 x 9	8 x 9	1 x 9
9 x 8	10 x 9	1 x 9	5 x 9	9 x 7	9 x 11	9 x 1	9 x 9	9 x 4	9 x 3

Week 6: Fifty Multiplication Facts: 10 and 11

THE MAD MINUTE

0 x 10	10 x 2	11 x 5	9 x 11	10 x 10	10 x 6	3 x 10	11 x 4	7 x 10	9 x 10
10 x 7	11 x 3	11 x 0	8 x 10	6 x 11	10 x 10	1 x 10	2 x 10	5 x 11	4 x 11
10 x 2	10 x 5	11 x 11	9 x 10	11 x 6	4 x 10	3 x 10	7 x 11	10 x 8	11 x 9
11 x 11	4 x 10	11 x 2	5 x 10	0 x 11	6 x 10	3 x 11	10 x 10	8 x 11	1 x 10
10 x 8	10 x 9	10 x 9	5 x 11	10 x 7	9 x 11	11 x 1	10 x 10	11 x 4	10 x 3

Week 7: Fifty Multiplication Facts: 12 **THE MAD MINUTE**

0 x 12	12 x 2	12 x 5	12 x 11	12 x 12	12 x 6	3 x 12	12 x 4	1 x 12	12 x 8
12 x 7	12 x 3	12 x 0	8 x 12	6 x 12	12 x 12	1 x 12	2 x 12	5 x 12	4 x 12
12 x 2	12 x 5	12 x 12	12 x 10	12 x 6	4 x 12	3 x 12	7 x 12	12 x 0	11 x 12
12 x 12	2 x 12	12 x 2	5 x 12	0 x 12	6 x 12	3 x 12	7 x 12	8 x 12	1 x 12
12 x 8	10 x 12	1 x 12	5 x 12	12 x 7	12 x 11	12 x 1	12 x 12	12 x 4	12 x 3

Week 8: Division Facts:

THE MAD MINUTE

$10\overline{)40}$	$9\overline{)81}$	$8\overline{)72}$	$12\overline{)36}$	$8\overline{)80}$	$8\overline{)96}$	$4\overline{)28}$	$7\overline{)28}$	$3\overline{)18}$	$5\overline{)15}$
$4\overline{)20}$	$4\overline{)32}$	$11\overline{)55}$	$9\overline{)27}$	$9\overline{)108}$	$9\overline{)54}$	$10\overline{)20}$	$7\overline{)49}$	$2\overline{)24}$	$9\overline{)72}$
$6\overline{)18}$	$10\overline{)80}$	$9\overline{)63}$	$6\overline{)36}$	$10\overline{)70}$	$11\overline{)88}$	$12\overline{)48}$	$2\overline{)8}$	$10\overline{)50}$	$3\overline{)33}$
$3\overline{)12}$	$4\overline{)28}$	$10\overline{)120}$	$8\overline{)88}$	$11\overline{)88}$	$11\overline{)99}$	$7\overline{)49}$	$9\overline{)99}$	$5\overline{)30}$	$5\overline{)55}$
$11\overline{)77}$	$12\overline{)60}$	$5\overline{)45}$	$5\overline{)50}$	$3\overline{)15}$	$4\overline{)32}$	$10\overline{)20}$	$7\overline{)63}$	$10\overline{)70}$	$8\overline{)24}$
$5\overline{)25}$	$4\overline{)12}$	$6\overline{)54}$	$4\overline{)48}$	$6\overline{)48}$	$7\overline{)21}$	$7\overline{)70}$	$8\overline{)32}$	$8\overline{)96}$	$4\overline{)36}$