Rising 6th Grade
Summer Math Practice

Hello Rising 6th Graders!

I am looking forward to teaching you this upcoming school year! Together we will explore many mathematical topics. This will be a challenging journey, but one in which you will learn a lot. In order that you are prepared for our math adventure, I encourage you to keep your skills sharp this summer by completing this packet.

If you get to a problem that you are unfamiliar with or have forgotten how to work, ask a friend, neighbor or parent, or look it up online. Please don't skip it! Once you have solved the problem, ask yourself, "Does my answer make sense?"

It is not recommended that you complete this packet immediately following school dismissal in May, nor the night before the packet is due. Student learning is most effective if the packet is completed week by week during the months of June through August. Please bring the completed packet on the first full day of school. This will be your first grade in 6th grade math, so PLEASE follow directions.

How your packet of work should look:

1. **Please show all work for your problems. You may do your work next to the problem or on another sheet of paper.**
2. **All work is to be neat.**
3. **All work is to be completed in pencil without the use of a calculator.**
4. **Keep the work together in a folder with your name on it.**

I hope you have a terrific summer and I look forward to seeing you on the first day of school. Please email me if you have any questions

Sincerely,
Mr. Bauer

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. 652 + 345

2. 203 + 525

3. 726 + 268

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

4. 7.75 + 1.46

5. 51.4 + 2.86

6. .1274 + 8.25

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

Example:

$$\begin{array}{r} {\scriptstyle \ \ 3\ 13} \\ 7\ \not{4}\ \not{3} \\ 2\ 1\ 8 \\ \hline 5\ 2\ 5 \end{array}$$

7. 407 − 198

8. 7,007 − 2,426

9. 3,414 − 1,218

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

10. 338.38 − 149.27

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.

$$divisor\overline{)dividend}\quad quotient$$

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.

```
        36
      /    \
     6  x   6
    / \     / \
   2 x 3   2 x 3
```

$2^2 \times 3^2$

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

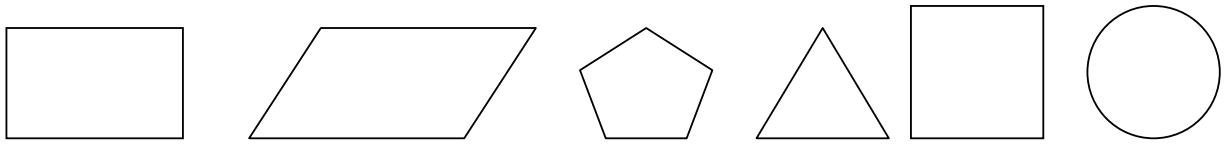
73. $64 \div 8 \times 2$

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

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**

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