6th Grade and 6th Grade Accelerated Math Summer Packet

Dear Students, Parents and Guardians,

Welcome to Bak Middle School of the Arts Mathematics!

Enclosed you will find a math packet to be **completed this summer**. These skills are all **prerequisite skills** for 6th grade math, meaning that they were taught in elementary school. It is expected that students will be proficient at all of these skills. They will be assessed during the first few weeks of school.

No Calculators! Show all appropriate work and circle your answers.
The packet will be collected within the first few weeks of school.
This assignment will be a portion of your first marking period homework grade.

In addition, it is imperative that all middle school students **master their multiplication facts**. Quick recall of all the facts from 0-12 will allow students to complete tasks in math quickly and with greater accuracy.

Mastery of multiplication facts is accomplished through memorization and frequent practice. The ideal experience is to practice with flashcards which can be purchased at the dollar store or made by hand. Parents practicing with students is highly recommended!

Besides traditional flashcards, below you will find a list of some available resources to assist in mastery of multiplication facts:

Websites:

- www.multiplication.com
- https://www.mathplayground.com/index_multiplication_division.html
- https://fun4thebrain.com/mult.html

Apps (Free):

- Math Speed Drill
- Math In A Flash
- Multiplication Flash Cards
- Times Tables
- Times Tables Quiz!
- Multiplication Math Games Math
- Math Champions Lite

On the next page you will find a 5 minute multiplication drill. If your child is not able to successfully answer the multiplication facts in the 5 minute window, please use the above resources.

Please ensure all multiplication facts (0-12) are memorized by the first day of school.

Name : _____ Score : _____

Teacher : _____ Date : _____

5 Minute Drill

6 x 8	6 x 9	5 x 11	11 x 6	6 x 7	10 x 7	11 x 5	5 x 9	7 x 12	11 x 8
5 x 6	11 x 10	8 x 12	8 x 6	10 x 10	5 x 12	11 x 5	12 x 9	10 x 7	11 x 6
12 x 12	9 x 10	11 x 9	10 x 12	11 x 7	12 x 8	10 x 9	11 x 5	11 x 5	8 x 11
7 x 5	8 x 9	7 x 5	11 x 6	6 x 12	5 x 8	5 x 11	11 x 9	11 x 12	9 x 9
10 x 6	9 x 6	7 x 7	9 x 10	6 x 5	6 x 5	7 x 7	5 x 11	9 x 7	11 x 8
7 x 11	12 x 8	11 x 6	9 x 7	5 x 8	8 x 9	7 x 6	12 x 8	10 x 8	9 x 5
5 x 12	8 x 5	9 x 5	11 x 8	11 x 10	5 x 6	12 x 9	12 x 12	12 x 8	7 x 10
7 x 7	6 x 12	11 x 5	11 x 6	8 x 5	12 x 8	7 x 9	12 x 9	7 x 6	6 x 5
5 x 6	11 x 10	6 x 6	8 x 5	5 x 9	5 x 7	6 x 6	7 x 12	10 x 7	8 x 12
10 x 5	11 x 8	5 x 8	12 x 8	10 x 12	5 x 7	12 x 7	6 x 12	6 x 10	8 x 5

Multiplying Whole Numbers

1. Write the problem vertically
2. Multiply the ones digit of the bottom number by each of the digits in the top number, right to left
3. Bring down a zero and then multiply the tens digit of the bottom number by each digit in the top number, right to left
4. Bring down two zeros and repeat with the hundreds digit of the bottom number
5. Add up all of the products

ex: 3,481 x 142

$$\begin{array}{r} {\scriptstyle 1}\quad {\scriptstyle 3}\;{\scriptstyle 1} \\ 3,481 \\ \times\quad 142 \\ \hline 6962 \\ +\;139240 \\ \;\;348100 \\ \hline 494,302 \end{array}$$

Dividing Whole Numbers

1. Write out the long division problem with the first number (dividend) underneath the division symbol and the second number (divisor) to the left of the division symbol
2. Divide the divisor into the smallest part of the dividend it can go into and write the number of times it can go in on top of the division symbol
3. Multiply the number on top by the divisor and write the product under the number you divided into in step 2
4. Subtract your product from the number above it
5. Bring down the next digit of the dividend
6. Repeat steps 2-5 until there is nothing left to bring down.
7. If your last subtraction answer is not zero, write the remainder on top

ex: 6,425 ÷ 21

$$\begin{array}{r} 305\ \text{R}\,20 \\ 21\overline{)\,6425} \\ -\,63 \\ \hline 12 \\ -\;0 \\ \hline 125 \\ -\;105 \\ \hline 20 \end{array}$$

Find each product. Show your work.

1. 238 x 5	2. 832 x 156	3. 4,899 x 67	4. 756 x 300
5. 19 x 863	6. 188 x 732	7. 3,249 x 173	8. 609 x 840

Find each quotient. Show your work.

9. 876 ÷ 2	10. 9,473 ÷ 5	11. 396 ÷ 24	12. 8,911 ÷ 45
13. 700 ÷ 12	14. 1,065 ÷ 15	15. 2,737 ÷ 305	16. 4,516 ÷ 22

Solve each problem, showing all work.

17. Mrs. Kleim bought 5 boxes of 15 pencils to give to her students. If she has 26 students in her class, how many pencils can she give each student? How many pencils will she have left over?	18. Sarah and her 3 friends split a bag of candy evenly. They each ate 13 pieces of candy and there were 2 pieces leftover. How many pieces of candy were originally in the bag?

Rounding with Whole Numbers & Decimals

ten-thousands	thousands	,	hundreds	tens	ones	.	tenths	hundredths	thousandths

1. Keep all digits to the left of the place you are rounding the same
2. If the digit to the right of the rounding digit is less than 5, keep the rounding digit the same. If it's 5 or greater, increase the rounding digit by 1.
3. Change all places to the right of the digit you are rounding to 0. (Trailing zeros after the decimal are unnecessary)

ex: round 52.943 to the nearest tenth

52.943

less than 5, so the 4 stays the same

52.900

don't need trailing zeros after the decimal

52.9

Word Form & Expanded Form

1. Word Form: write the whole number in word form, translate the decimal to "and", & write the decimal as if it were a whole number, followed by the name of the place of the last digit
2. Expanded Form: write the value of each non-zero digit separately, with addition signs between them

ex: 209.315

two hundred nine and three hundred fifteen thousandths

200 + 9 + 0.3 + 0.01 + 0.005

Comparing & Ordering Decimals

1. Compare the whole number portions of the numbers. If they are different write > for greater than or < for less than.
2. If the whole numbers are the same, compare each digit to the right of the decimal point, one at a time until you find digits that are different. (If necessary, add zeros at the end of a decimal.)

ex: 13.702 ◯ 13.74

13 = 13

13.7 = 13.7

13.70 < 13.74

So, 13.702 < 13.74

Round the number 21,498.2536 to the nearest indicated place.

19. tenth	20. hundred	21. thousandth	22. one
23. thousand	24. hundredth	25. ten	26. ten-thousand

Complete the chart below.

Standard Form	Expanded Form	Word Form
3.962	27.	28.
29.	100 + 2 + 0.09	30.
31.	32.	Five thousand six hundred eighty-five and twelve hundredths
8,770.006	33.	34.
35.	900 + 10 + 4 + 0.3 + 0.02 + 0.008	36.
37.	38.	Two thousand nine and thirty-five thousandths

Compare each pair of numbers by writing <, >, or = in the provided circle.

39. 0.046 ◯ 0.13	40. 9.52 ◯ 90.13	41. 24.13 ◯ 24.130	42. 15.96 ◯ 15.906
43. 0.964 ◯ 1	44. 6.83 ◯ 6.825	45. 7.256 ◯ 7.24	46. 32.9 ◯ 3.290

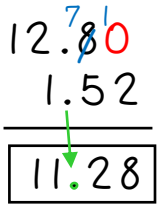
Order the numbers from least to greatest.

47. 6.86, 6.8, 7, 6.9, 6.827	48. 12.03, 1.2, 12.3, 1.203, 12.301

Adding & Subtracting Decimals

1. Write the problem vertically, lining up the decimal points
2. Add zeros, if necessary
3. Add or subtract the numbers as if they were whole numbers
4. Bring the decimal point straight down

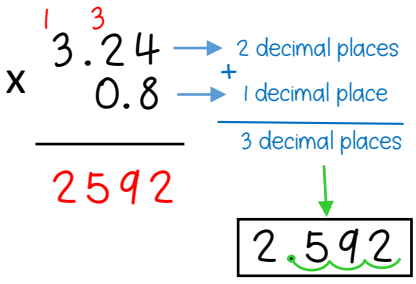
ex: 12.8 - 1.52



Multiplying Decimals

1. Write the problem vertically with the numbers lined up to the right (decimals do NOT need to be lined up)
2. Ignore the decimal points and multiply the numbers as if they were whole numbers
3. Count the total number of decimal places in the two factors and put a decimal point in the product so that it has that same number of decimal places

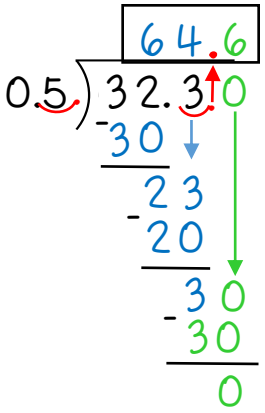
ex: 3.24 x 0.8



Dividing Decimals

1. Write the dividend under the division symbol and the divisor in front of the division symbol
2. Move the decimal in the divisor after the number and then move the decimal in the dividend the same number of places and bring it up
3. Ignore the decimal point and divide as if whole numbers
4. If there is a remainder, add a zero to the end of the dividend, bring it down, and then continue dividing until there is no remainder

ex: 32.3 ÷ 0.5



Find each sum or difference. Show your work.

49. 8.74 + 10.36	50. 37.4 – 8.55	51. 12.9 + 105.67	52. 450.89 – 213.33
53. 24.1 + 3.74	54. 14.76 – 9.8	55. 622.85 + 53.49	56. 67 – 14.06

Find each product or quotient. Show your work. (Problems 57 – 64 are optional.)

57. 4.5 x 6	58. 144.8 ÷ 4	59. 2.7 x 0.8	60. 6.2 ÷ 0.04
61. 8.9 x 2.5	62. 15.8 ÷ 0.5	63. 14.8 x 0.12	64. 16.2 ÷ 1.2

Solve each problem, showing all work.

65. Ryan spent $3.25 on lunch every day, Monday through Friday. If he had $20 at the start of the week, how much money did he have left after Friday?	66. Three friends went out to lunch. The bill came to $47.31. If they split the bill evenly, how much money does each friend owe?

Adding & Subtracting Fractions

1. Rename the fractions to equivalent fractions with common denominators
2. Add or subtract the numerators and keep the denominator the same
3. If mixed numbers, add or subtract the whole numbers
4. If possible, simplify the answer & change improper fractions to mixed numbers

ex: $4\frac{4}{9} + \frac{2}{3}$

$$4\tfrac{4}{9} \overset{\times 1}{\underset{\times 1}{=}} \tfrac{4}{9}$$

$$+\ \tfrac{2}{3} \overset{\times 3}{\underset{\times 3}{=}} \tfrac{6}{9}$$

$$4\ \tfrac{10}{9} = \boxed{5\ \tfrac{1}{9}}$$

Blank

Keep Going →

Find each sum or difference. Show your work.

67. $\frac{7}{8} + \frac{5}{6}$	68. $\frac{9}{10} - \frac{1}{2}$	69. $\frac{3}{11} + \frac{2}{3}$	70. $\frac{11}{12} - \frac{13}{18}$
71. $4\frac{5}{9} + 7\frac{1}{3}$	72. $12\frac{9}{14} - 9\frac{3}{7}$	73. $3\frac{3}{5} + 2\frac{3}{4}$	74. $2\frac{2}{15} - 1\frac{2}{3}$

75. **FLAMINGOS** One flamingo weighs $7\frac{3}{4}$ pounds. A second flamingo weighs $6\frac{1}{3}$ pounds. How much more does the first flamingo weigh than the second?

76. **SHAMPOO** Norris poured $1\frac{1}{2}$ ounces of shampoo into a bottle. Then he added another $1\frac{2}{5}$ ounces. He is going on an airplane and the airline only allows 3 ounces of liquids in a carry-on bag. Will Norris be able to put this bottle of shampoo in his carry-on? Explain.

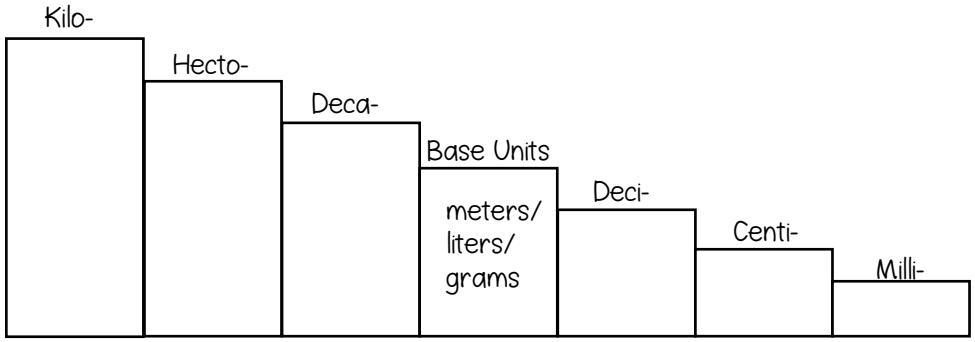
77. **AQUATIC MAMMALS** A manatee is $11\frac{5}{6}$ feet long and a porpoise is $7\frac{3}{4}$ feet long. How much longer is the manatee than the porpoise?

78. **FOOD** Coleta bought $3\frac{1}{2}$ pounds of ground beef and $2\frac{1}{3}$ pounds of ground pork at the meat market. How much ground meat did she buy?

79. **MOVIES** Shukti watched $1\frac{1}{3}$ hours of a movie before dinner. The movie is $2\frac{1}{4}$ hours long. How much more of the movie does Shukti have to watch after dinner?

There are no problems #80-84! Keep going- ☺

The Metric System



Determine the direction and count the number of steps it takes to get from the starting unit to the unit you are converting to and move the decimal point the same number of places in that direction.

ex: 23 m = ____ cm

going from base unit step to centi- step, so need to move the decimal 2 places right

23.00

= 2,300 cm

The Customary System

Length	Weight	Capacity
1 ft = 12 in 1 yd = 3 ft 1 mi = 5,280 ft	1 lb = 16 oz 1 T = 2,000 lb	1 c = 8 fl oz 1 pt = 2 c 1 qt = 2 pt 1 gal = 4 qt

To convert from a larger unit to a smaller unit, multiply. To convert from a smaller unit to a larger unit, divide.

ex: 18 c = ____ pt

cups are smaller units of measure than pints, so need to divide

18 ÷ 2 = 9 pints

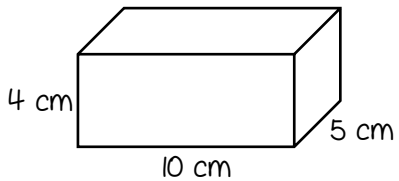
Volume

Volume is the number of cubic units inside a figure.

Volume of Rectangular Prism = length x width x height

Volume of Irregular Figure: count cubic units

ex: find the volume



$V = 4 \times 10 \times 5 =$ 200 cm^3

Convert each Metric measurement. Show your work.

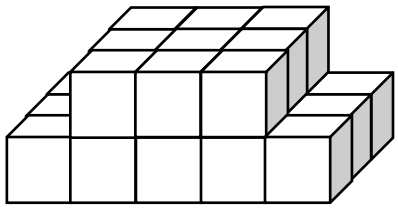
85. 1.9 km = _____ m	86. 23 g = _____ mg	87. 350 mℓ = _____ kℓ
88. 0.07 kg = _____ cg	89. 6 cm = _____ m	90. 35 mℓ = _____ ℓ

Convert each Customary measurement. Show your work.

91. 48 in = _____ ft	92. 6 pt = _____ c	93. 3 T = _____ lb
94. 1.5 mi = _____ ft	95. 32 pt = _____ gal	96. 32 oz = _____ lb

Find the volume of each figure. Show your work.

97.



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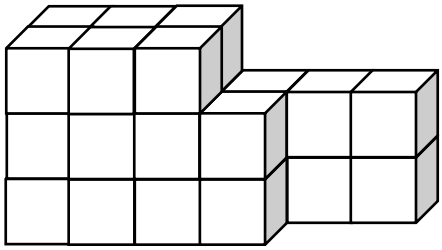

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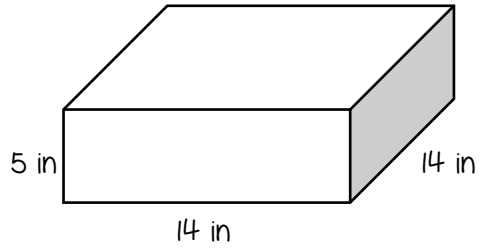

100.