

Incoming 6th Grade

Summer Math Work!

****Please show ALL your work****
This will count as a test grade.

Name _____

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: $3,481 \times 142$

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

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: $6,425 \div 21$

$$\begin{array}{r} \boxed{305 \text{ R } 20} \\ 21 \overline{) 6425} \\ \underline{-63} \\ 12 \\ \underline{-12} \\ 0 \\ \underline{-12} \\ 25 \\ \underline{-21} \\ 20 \end{array}$$

Find each product. Show your work.

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

Find each quotient. Show your work.

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

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 9 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: $12.8 - 1.52$

$$\begin{array}{r} 12.\overset{7}{8}\overset{1}{0} \\ - 1.52 \\ \hline 11.28 \end{array}$$

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: 3.24×0.8

$$\begin{array}{r} \overset{1}{3}.\overset{3}{2}4 \rightarrow 2 \text{ decimal places} \\ \times 0.8 \rightarrow 1 \text{ decimal place} \\ \hline 2592 \\ \text{3 decimal places} \\ \downarrow \\ \boxed{2.592} \end{array}$$

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: $32.3 \div 0.5$

$$\begin{array}{r} \boxed{64.6} \\ 0.5 \overline{) 32.310} \\ \underline{-30} \\ 23 \\ \underline{-20} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

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.

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

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

$$\begin{array}{r} 4\frac{4}{9} \quad \begin{array}{l} \times 1 \\ \times 1 \end{array} \quad \frac{4}{9} \\ + \quad \frac{2}{3} \quad \begin{array}{l} \times 3 \\ \times 3 \end{array} \quad \frac{6}{9} \\ \hline \end{array}$$

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

Multiplying Fractions

1. Turn a whole number into a fraction by giving it a denominator of 1
2. Cross-simplify the fractions if possible
3. Multiply the 2 numerators and the 2 denominators
4. If possible, simplify the answer & change improper fractions to mixed numbers

ex: $6 \times \frac{2}{3}$

$$\begin{array}{r} \cancel{2} \quad \frac{2}{1} \\ \times \quad \frac{2}{\cancel{3}} \\ \hline \end{array} = \frac{4}{1}$$

$$= \boxed{4}$$

Dividing Fractions

1. Turn a whole number into a fraction by giving it a denominator of 1
2. Keep the 1st fraction the same, change the division symbol to multiplication, and flip the 2nd fraction to its reciprocal
3. Multiply the 2 fractions
4. If possible, simplify the answer & change improper fractions to mixed numbers

ex: $12 \div \frac{1}{2}$

$$\frac{12}{1} \div \frac{1}{2}$$

$$\frac{12}{1} \times \frac{2}{1} = \frac{24}{1} = \boxed{24}$$

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. $2\frac{2}{15} - 1\frac{2}{3}$

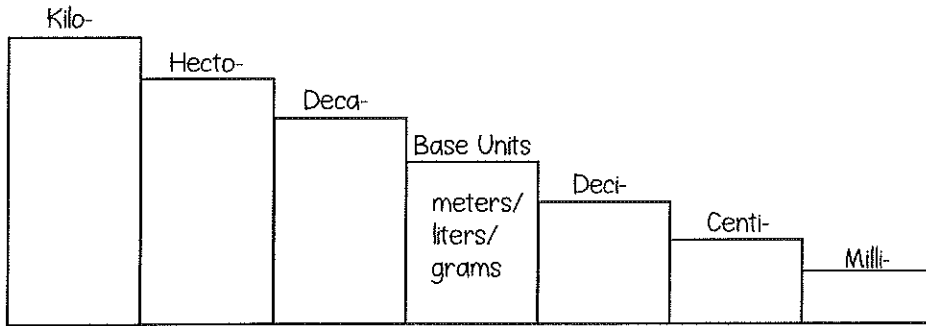
Find each product or quotient. Show your work.

75. $\frac{1}{6} \times \frac{3}{4}$	76. $6 \div \frac{1}{3}$	77. $15 \times \frac{2}{3}$	78. $\frac{1}{2} \div 3$
79. $\frac{1}{6} \times 10$	80. $\frac{1}{4} \div 2$	81. $\frac{5}{9} \times \frac{3}{20}$	82. $4 \div \frac{1}{5}$

Solve each problem, showing all work.

83. Jacqui ran $1\frac{1}{2}$ miles on Monday, Wednesday, and Friday and $\frac{3}{4}$ mile on Tuesday and Thursday. How far did she run in all?	84. Tyrell gave 3 packs of baseball cards to his friends. He gave each friend $\frac{1}{3}$ of a pack. How many friends got baseball cards?
--	---

The Metric System



ex: $23 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

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

$$23 \text{ } \overline{)00}$$

$$= \boxed{2,300 \text{ cm}}$$

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.

The Customary System

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

ex: $18 \text{ c} = \underline{\hspace{2cm}} \text{ pt}$

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

$$18 \div 2 = \boxed{9 \text{ pints}}$$

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

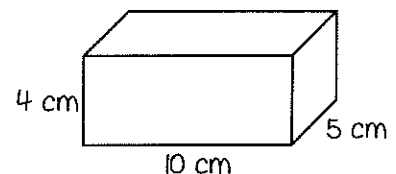
Volume

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



$$V = 4 \times 10 \times 5 = \boxed{200 \text{ cm}^3}$$

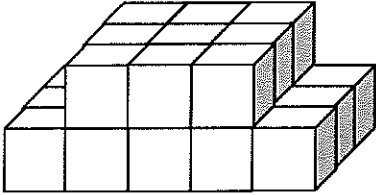
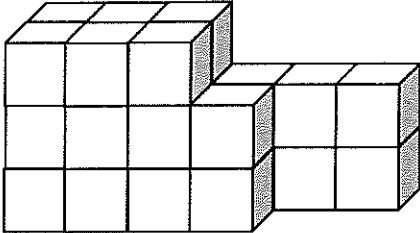
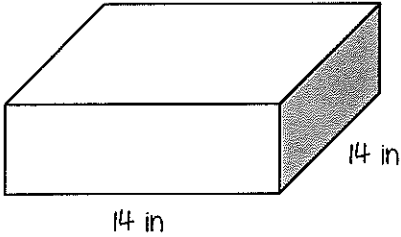
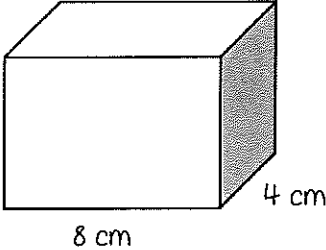
Convert each Metric measurement. Show your work.

85. $1.9 \text{ km} = \underline{\hspace{2cm}} \text{ m}$	86. $23 \text{ g} = \underline{\hspace{2cm}} \text{ mg}$	87. $350 \text{ ml} = \underline{\hspace{2cm}} \text{ kl}$
88. $0.07 \text{ kg} = \underline{\hspace{2cm}} \text{ cg}$	89. $6 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$	90. $35 \text{ ml} = \underline{\hspace{2cm}} \text{ l}$

Convert each Customary measurement. Show your work.

91. $48 \text{ in} = \underline{\hspace{2cm}} \text{ ft}$	92. $6 \text{ pt} = \underline{\hspace{2cm}} \text{ c}$	93. $3 \text{ T} = \underline{\hspace{2cm}} \text{ lb}$
94. $1.5 \text{ mi} = \underline{\hspace{2cm}} \text{ ft}$	95. $32 \text{ pt} = \underline{\hspace{2cm}} \text{ gal}$	96. $32 \text{ oz} = \underline{\hspace{2cm}} \text{ lb}$

Find the volume of each figure. Show your work.

<p>97.</p> 	<p>98.</p> 
<p>99.</p> 	<p>100.</p> 

4-Digit by 2-Digit Multiplication (G)

Name: _____

Date: _____

Calculate each product.

$$\begin{array}{r} 3488 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 9016 \\ \times 90 \\ \hline \end{array}$$

$$\begin{array}{r} 1878 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 5654 \\ \times 93 \\ \hline \end{array}$$

$$\begin{array}{r} 6643 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 6249 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 6525 \\ \times 95 \\ \hline \end{array}$$

$$\begin{array}{r} 2743 \\ \times 48 \\ \hline \end{array}$$

$$\begin{array}{r} 6055 \\ \times 88 \\ \hline \end{array}$$

$$\begin{array}{r} 4543 \\ \times 57 \\ \hline \end{array}$$

$$\begin{array}{r} 1562 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 7050 \\ \times 88 \\ \hline \end{array}$$

$$\begin{array}{r} 8826 \\ \times 44 \\ \hline \end{array}$$

$$\begin{array}{r} 7366 \\ \times 31 \\ \hline \end{array}$$

$$\begin{array}{r} 4611 \\ \times 79 \\ \hline \end{array}$$

$$\begin{array}{r} 2554 \\ \times 59 \\ \hline \end{array}$$

Score: /16

4-Digit by 2-Digit Multiplication (H)

Name: _____

Date: _____

Calculate each product.

$$\begin{array}{r} 2564 \\ \times 39 \\ \hline \end{array}$$

$$\begin{array}{r} 5320 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 1435 \\ \times 87 \\ \hline \end{array}$$

$$\begin{array}{r} 4455 \\ \times 31 \\ \hline \end{array}$$

$$\begin{array}{r} 3847 \\ \times 76 \\ \hline \end{array}$$

$$\begin{array}{r} 5969 \\ \times 57 \\ \hline \end{array}$$

$$\begin{array}{r} 9994 \\ \times 66 \\ \hline \end{array}$$

$$\begin{array}{r} 1923 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} 9054 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 5467 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 9120 \\ \times 31 \\ \hline \end{array}$$

$$\begin{array}{r} 1651 \\ \times 91 \\ \hline \end{array}$$

$$\begin{array}{r} 8585 \\ \times 54 \\ \hline \end{array}$$

$$\begin{array}{r} 5051 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 9764 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 1692 \\ \times 58 \\ \hline \end{array}$$

Score: /16

4-Digit by 2-Digit Multiplication (I)

Name: _____

Date: _____

Calculate each product.

$$\begin{array}{r} 2998 \\ \times 97 \\ \hline \end{array}$$

$$\begin{array}{r} 2885 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 6376 \\ \times 70 \\ \hline \end{array}$$

$$\begin{array}{r} 8798 \\ \times 59 \\ \hline \end{array}$$

$$\begin{array}{r} 6855 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 1796 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 5975 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 6015 \\ \times 81 \\ \hline \end{array}$$

$$\begin{array}{r} 4869 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 5396 \\ \times 71 \\ \hline \end{array}$$

$$\begin{array}{r} 5644 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 6993 \\ \times 28 \\ \hline \end{array}$$

$$\begin{array}{r} 5720 \\ \times 78 \\ \hline \end{array}$$

$$\begin{array}{r} 9528 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 6707 \\ \times 61 \\ \hline \end{array}$$

$$\begin{array}{r} 3000 \\ \times 74 \\ \hline \end{array}$$

Score: /16

4-Digit by 2-Digit Multiplication (J)

Name: _____

Date: _____

Calculate each product.

$$\begin{array}{r} 8122 \\ \times 38 \\ \hline \end{array}$$

$$\begin{array}{r} 7462 \\ \times 88 \\ \hline \end{array}$$

$$\begin{array}{r} 4262 \\ \times 55 \\ \hline \end{array}$$

$$\begin{array}{r} 1159 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 5460 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 1662 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 5581 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 9007 \\ \times 98 \\ \hline \end{array}$$

$$\begin{array}{r} 4777 \\ \times 54 \\ \hline \end{array}$$

$$\begin{array}{r} 3715 \\ \times 31 \\ \hline \end{array}$$

$$\begin{array}{r} 3959 \\ \times 98 \\ \hline \end{array}$$

$$\begin{array}{r} 1340 \\ \times 75 \\ \hline \end{array}$$

$$\begin{array}{r} 4059 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 4386 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 7765 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 2816 \\ \times 98 \\ \hline \end{array}$$

Score: /16

Subtracting With ALL Regrouping (A)

Name: _____

Date: _____

Calculate each difference.

$$\begin{array}{r} 33118102 \\ - 9449128 \\ \hline \end{array}$$

$$\begin{array}{r} 73305298 \\ - 6957799 \\ \hline \end{array}$$

$$\begin{array}{r} 21001837 \\ - 5067859 \\ \hline \end{array}$$

$$\begin{array}{r} 93080113 \\ - 4084558 \\ \hline \end{array}$$

$$\begin{array}{r} 80142516 \\ - 1367868 \\ \hline \end{array}$$

$$\begin{array}{r} 86321116 \\ - 7741589 \\ \hline \end{array}$$

$$\begin{array}{r} 20102362 \\ - 7754776 \\ \hline \end{array}$$

$$\begin{array}{r} 13656336 \\ - 4957777 \\ \hline \end{array}$$

$$\begin{array}{r} 76621004 \\ - 9831615 \\ \hline \end{array}$$

$$\begin{array}{r} 10115222 \\ - 4297598 \\ \hline \end{array}$$

$$\begin{array}{r} 72081740 \\ - 2095964 \\ \hline \end{array}$$

$$\begin{array}{r} 70433633 \\ - 6635645 \\ \hline \end{array}$$

$$\begin{array}{r} 33233650 \\ - 4677868 \\ \hline \end{array}$$

$$\begin{array}{r} 83545032 \\ - 7545147 \\ \hline \end{array}$$

$$\begin{array}{r} 21045046 \\ - 2965949 \\ \hline \end{array}$$