



OAK HALL SCHOOL

2024-2025

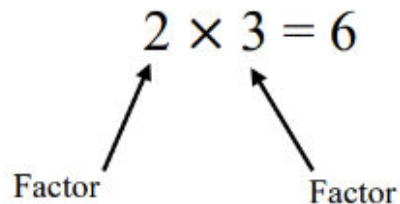
Suggested Review Exercises
for students entering

*Advanced
Math 6*

Greatest Common Factor (GCF):

The highest number that divides exactly into two or more numbers.

Factors are the numbers we can multiply together to get another number:



So, 2 and 3 are both factors of 6. 1 and 6 are also factors of 6.

To find the greatest common factor:

Step 1: Find all the factors of each number

Step 2: Circle the common factors

Step 3: Choose the greatest of those

The greatest common factor of 12 and 16:

Factors of 12: (1), (2), 3, (4), 6, 12

Factors of 16: (1), (2), (4), 8, 16

4 is the greatest common factor of 12 and 16

Find the GCF of each.

1) 24, 36

2) 21, 28

3) 32, 12

4) 40, 20

5) 12, 21

6) 48, 24

7) 35, 14

8) 36, 18

9) 24, 16

10) 26, 4

Least Common Multiple (LCM):

The multiples of a number are the product results of one number being multiplied by other numbers.

For example:

The multiples of 4 are: 4, 8, 12, 16, 20, 24, 28...

Common Multiples are multiples that are shared by two or more numbers.

The least (or smallest) of these common multiples is the least common multiple, LCM.

The least common multiple of 3 and 8:

The multiples of 3: 3, 6, 9, 12, 15, 18, 21, (24)

The multiples of 8: 8, 16, (24)

The least common multiple of 3 and 8 is 24

Find the LCM of each.

11) 4, 6

12) 10, 4

13) 10, 15

14) 20, 15

15) 6, 16

16) 20, 12

17) 14, 12

18) 15, 18

19) 16, 22

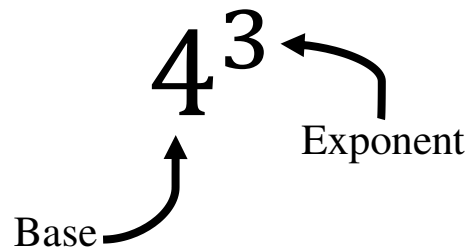
20) 60, 50

Exponents:

The exponent of a number says how many times to use the number in multiplication.

In 4^3 , the “3” says to use 4 three times in a multiplication, so

$$4^3 = 4 \times 4 \times 4 = 64$$



Evaluate: to find the value of, or to solve.

Evaluate the exponent.

21) 4^2

22) 1^9

23) 2^5

24) 3^3

25) 5^4

26) 2^7

27) 8^2

28) 6^3

29) 7^1

30) 10^3

Order of Operations: The order in which operations take place. Remember PEMDAS

P Parenthesis

E Exponent

MD Multiplication or Division (do these in order left to right)

AS Addition and Subtraction (do these in order left to right)

1. Evaluate expressions inside grouping symbols. (Parenthesis, brackets, and fraction bars are common grouping symbols.)
2. Evaluate exponents
3. Multiply and divide from left to right.
4. Add and subtract from left to right.

Example:

$$2 \times 4 + 4^2$$

There are no parenthesis, so move on to exponents:

$$2 \times 4 + 16$$

Now multiplication

$$8 + 16$$

Finally addition

$$24$$

Evaluate each expression.

31) $2^2 \div 2$

32) $6 - (6 - 1)$

33) $3 \times 5 - 6$

34) $5 \times 5 - 4$

35) $15 \div 5 + 3$

36) $2^3 - 2$

37) $30 \div (9 - 3)$

38) $3^3 + 8$

39) $9 \div (6 - 3)$

40) $5 \times 3 + 7$

41) $7 - (12 \times 2) \div 8$

42) $2 + 9 - 3^2$

Adding and Subtracting Fractions:

1. Write the fractions using the least common denominator (LCD)
2. Write the sum or difference of numerators over the denominator
3. Solve
4. If you are adding or subtracting mixed fractions, first turn your mixed fractions into improper fractions.

Example 1:	$\frac{4}{5} + \frac{1}{3}$	
Rewrite $\frac{4}{5}$ and $\frac{1}{3}$ using the LCD		$\frac{4}{5} + \frac{1}{3} = \frac{12}{15} + \frac{5}{15}$
Write sum of numerators over denominator		$\frac{12 + 5}{15}$
Add		$\frac{17}{15}$

Example 2:	$3\frac{1}{6} - 1\frac{2}{3}$	
Rewrite $3\frac{1}{6}$ and $1\frac{2}{3}$ as improper fractions		$3\frac{1}{6} - 1\frac{2}{3} = \frac{19}{6} - \frac{5}{3}$
Rewrite with LCD		$\frac{19}{6} - \frac{10}{6}$
Write as difference of numerators over denominator		$\frac{19-10}{6}$
Subtract		$\frac{9}{6}$
Simplify when needed		$\frac{3}{2}$

$$43) 7\frac{1}{7} + \frac{13}{7}$$

$$44) \frac{3}{2} + \frac{2}{3}$$

$$45) 2 - \frac{1}{3}$$

$$46) 3\frac{5}{6} + \frac{3}{4}$$

$$47) 4\frac{1}{7} + \frac{5}{6}$$

$$48) 3\frac{3}{7} + 3\frac{1}{2}$$

$$49) 1\frac{3}{7} + \frac{3}{2}$$

$$50) \frac{7}{5} + 1\frac{1}{4}$$

$$51) \frac{1}{4} + \frac{1}{3}$$

$$52) 4\frac{1}{2} - 3\frac{3}{5}$$

Multiplying Fractions:

1. Multiply the numerators
2. Multiply the denominators
3. Simplify the fraction if needed

If you are multiplying mixed fractions, first turn your mixed fractions into improper fractions.

When multiplying fraction and whole numbers, make the whole number a fraction by putting it over 1.

Example 1:

$$\frac{2}{5} \times \frac{1}{8}$$

Multiply the numerators & denominators:

$$\frac{2}{5} \times \frac{1}{8} = \frac{2 \times 1}{5 \times 8}$$

Simplify

$$\frac{2 \times 1}{5 \times 8} = \frac{2}{40} = \frac{1}{20}$$

Example 2:

$$3\frac{1}{8} \times 4$$

Write mixed numbers as improper fractions:

$$3\frac{1}{8} \times 4 = \frac{25}{8} \times \frac{4}{1}$$

Multiply the numerators & denominators:

$$\frac{25 \times 4}{8 \times 1} = \frac{100}{8}$$

Simplify

$$\frac{100}{8} = \frac{25}{2}$$

Find each product.

$$53) 4\frac{1}{4} \times \frac{9}{10}$$

$$54) 3\frac{6}{7} \times \frac{2}{3}$$

$$55) 4\frac{1}{2} \times \frac{7}{5}$$

$$56) 2 \times \frac{4}{3}$$

$$57) \frac{8}{5} \times \frac{1}{6}$$

$$58) 2 \times \frac{7}{5}$$

$$59) \frac{1}{6} \times \frac{9}{5}$$

$$60) \frac{7}{4} \times \frac{9}{5}$$

$$61) 1\frac{1}{10} \times \frac{3}{2}$$

$$62) \frac{3}{5} \times \frac{8}{5}$$

Dividing Fractions:

Multiply the first fraction by the reciprocal of the second fraction, just remember:
Copy Dot Flop (or Keep Change Flip)

1. Keep the first fraction
2. Change the division symbol into multiplication
3. Flip the second fraction

If you are multiplying mixed fractions or whole numbers, first turn your mixed fractions or whole numbers into improper fractions.

Example:

$$\frac{5}{6} \div \frac{5}{12}$$

Keep, change, flip

$$\frac{5}{6} \div \frac{5}{12} = \frac{5}{6} \times \frac{12}{5}$$

Multiply

$$\frac{5}{6} \times \frac{12}{5} = \frac{60}{30}$$

Simplify

$$\frac{60}{30} = \frac{2}{1} = 2$$

Find each quotient.

$$63) \frac{1}{2} \div \frac{5}{4}$$

$$64) \frac{5}{4} \div 5$$

$$65) 2\frac{1}{3} \div 2$$

$$66) \frac{13}{9} \div \frac{6}{7}$$

$$67) \frac{5}{6} \div \frac{4}{3}$$

$$68) \frac{7}{5} \div \frac{2}{3}$$

$$69) \frac{3}{5} \div 3\frac{1}{10}$$

$$70) 4\frac{1}{2} \div \frac{3}{4}$$

$$71) 4\frac{8}{9} \div 1\frac{1}{6}$$

$$72) \frac{7}{5} \div 3$$

Adding and subtracting decimals:

1. Line up the decimal points
2. Put in zeros so the numbers are the same length
3. Then add or subtract, remembering to put the decimal in the answer.

Example 1:

$$2.56 + 1.7$$

$$\begin{array}{r} 2.56 \\ +1.70 \\ \hline 4.26 \end{array}$$

Example 2:

$$13.8 - 1.27$$

$$\begin{array}{r} 13.80 \\ - 1.27 \\ \hline 12.53 \end{array}$$

Evaluate each expression.

73) $5.7 - 2.3$

74) $7.6 - 4.9$

75) $5.3 + 0.8$

76) $5.2 + 3.9$

77) $7.02 + 3.4$

78) $0.5 + 3.4$

79) $7.4 - 6.623$

80) $10.546 - 1.7$

81) $2.1 + 11.901$

82) $1.2 + 6.7$

Multiplying decimals

1. Multiply normally, ignoring the decimals
2. Then put the decimal point in the answer. It will have as many decimal places as the two original numbers combined.

Example:

$$3.77 \times 2.8$$

Multiply normally

$$\begin{array}{r} 3.77 \text{ (2 decimal places)} \\ \times 2.8 \text{ (1 decimal place)} \\ \hline 3016 \\ + 7540 \\ \hline \end{array}$$

Move the decimal 3 times

$$10.556 \text{ (3 decimal places)}$$

Find each product.

83) 7.3×8

84) 3.7×5

85) 10×5.6

86) 3.6×1.2

87) 1.4×3.8

88) 5.1×4.7

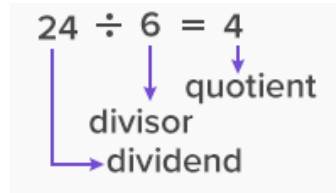
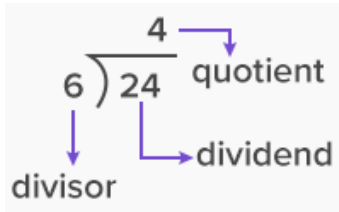
89) 7.6×0.2

90) 7.03×9.1

91) 6.8×2.83

92) 9.3×5.3

Dividing Decimals: there are three parts when dividing: the dividend, the divisor, and the quotient.



In order to divide, we must make the divisor a whole number. To do this, we multiply the divisor and the dividend by a power of 10 to make the divisor a whole number. Then place the decimal point in the quotient above the decimal point in the dividend and divide.

$$3.25 \div 2.5$$

1.5 has one number behind the decimal place, so we need to multiply 1.5×10
 $2.5 \times 10 = 25$

Since we multiplied 2.5×10 , we must ALSO multiply 3.25×10
 $3.25 \times 10 = 32.5$

Now we can divide $32.5 \div 25$

Place your decimal point in the quotient above your decimal in the dividend.

$$25 \overline{)32.5}$$

Divide:

$$\begin{array}{r} 1.3 \\ 25 \overline{)32.5} \\ \underline{-25} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

Find each quotient.

93) $1.5 \div 7.5$

94) $4 \div 1.6$

95) $8.46 \div 6$

96) $5.9 \div 5$

97) $2.1 \div 0.3$

98) $1.6 \div 10$

99) $3.2 \div 0.5$

100) $4 \div 5$

101) $0.8 \div 0.01$

102) $11.1 \div 15$

Statistics: finding mean, median, and mode

Mean:

1. Add up all the numbers
2. Divide by how many numbers there are.

Median:

1. Put the numbers in order from least to greatest
2. Find the middle number in the sorted list
3. If there are an even number of numbers, you must find the middle pair of numbers and find the number halfway between them
 - a. Do this by adding them together and dividing by two.

Mode:

The number or numbers that occur the most often.

Example:

Find the mean, median, and mode of the following numbers:

3, 7, 12, 4, 3, 4, 9, 6

Mean: add up all the numbers and divide by how many numbers there are:

$$\frac{3 + 7 + 12 + 4 + 3 + 4 + 9 + 6}{8} = \frac{48}{8} = 6$$

Median:

Put all the numbers in order

3, 3, 4, 4, 6, 7, 9, 12

Find the middle

3, 3, 4, 4, 6, 7, 9, 12

There are an even number of numbers,

so we average our two middle numbers

$$\frac{4+6}{2} = 5$$

Mode: the number or numbers that occur the most: 3 and 4

Find the mode, median, and mean for each data set.

103) Goals in a Hockey Game
10 8 6 8 6 4 8 5
5 5

104) Mens Heights (Inches)
68 64 74 69 62 69 68
70 68

105) Hits in a Round of Hacky Sack
6 4 5 6 10 3 8 4
1 23

106) Hits in a Round of Hacky Sack
3 3 22 2 8 6 8 3
7 8

107) Test Scores
47 49 50 39 44 44 51
47 34

108) Hits in a Round of Hacky Sack
3 5 6 4 8 11 3 6
12 6 2

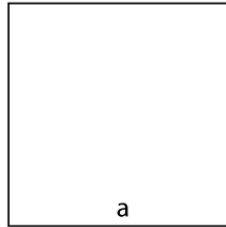
Finding area of rectangles, squares, and triangles:

Formulas for Area:



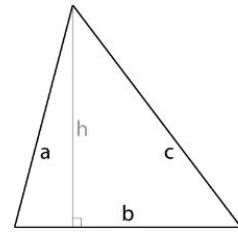
Rectangle

$$A = l \times w$$



Square

$$A = a^2$$

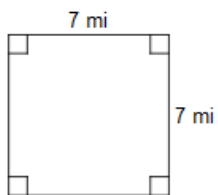


Triangle

$$A = \frac{b \times h}{2}$$

Find the area of each.

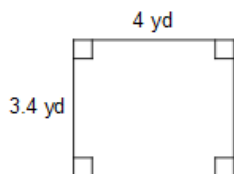
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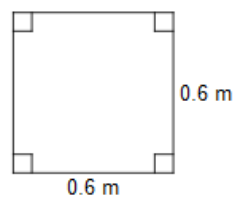
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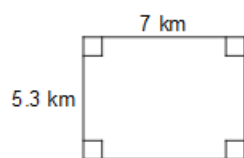
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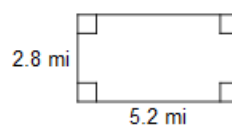
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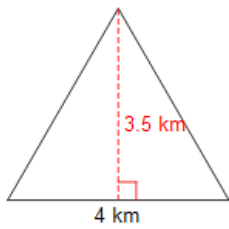
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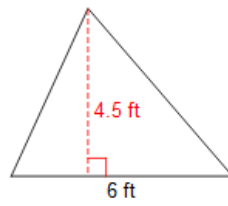
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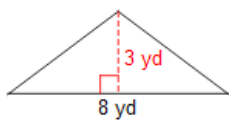
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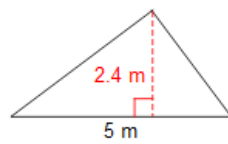
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117)



118)



Answers to Advanced Math 6 Summer Math Packet

- | | | | |
|---|------------------------|---|---------------------------|
| 1) 12 | 3) 4 | 5) 3 | 7) 7 |
| 9) 8 | 11) 12 | 13) 30 | 15) 48 |
| 17) 84 | 19) 176 | 21) 16 | 23) 32 |
| 25) 625 | 27) 64 | 29) 7 | 31) 2 |
| 33) 9 | 35) 6 | 37) 5 | 39) 3 |
| 41) 4 | 43) 9 | 45) $1\frac{2}{3}$ | 47) $4\frac{41}{42}$ |
| 49) $2\frac{13}{14}$ | 51) $\frac{7}{12}$ | 53) $3\frac{33}{40}$ | 55) $6\frac{3}{10}$ |
| 57) $\frac{4}{15}$ | 59) $\frac{3}{10}$ | 61) $1\frac{13}{20}$ | 63) $\frac{2}{5}$ |
| 65) $1\frac{1}{6}$ | 67) $\frac{5}{8}$ | 69) $\frac{6}{31}$ | 71) $4\frac{4}{21}$ |
| 73) 3.4 | 75) 6.1 | 77) 10.42 | 79) 0.777 |
| 81) 14.001 | 83) 58.4 | 85) 56 | 87) 5.32 |
| 89) 1.52 | 91) 19.244 | 93) 0.2 | 95) 1.41 |
| 97) 7 | 99) 6.4 | 101) 80 | |
| 103) Mode = 5 and 8, Median = 6 and
Mean = 6.5 | | 105) Mode = 4 and 6, Median = 5.5 and
Mean = 7 | |
| 107) Mode = 44 and 47, Median = 47 and
Mean = 45 | | 109) 49 mi ² | 111) 13.6 yd ² |
| 113) 37.1 km ² | 115) 7 km ² | 117) 12 yd ² | |