CHAPTER 1 Notes Sheet

Lesson 1.01 Rounding, Estimating, & Range

A. Place Values

ten thousands · tenths · hundredths · hundred thousands · thousands · thousandths · ten thousandths · millions · hundreds · tens · ones

1,342,365.1427

decimal point

MathATube.com to gether we'll learn
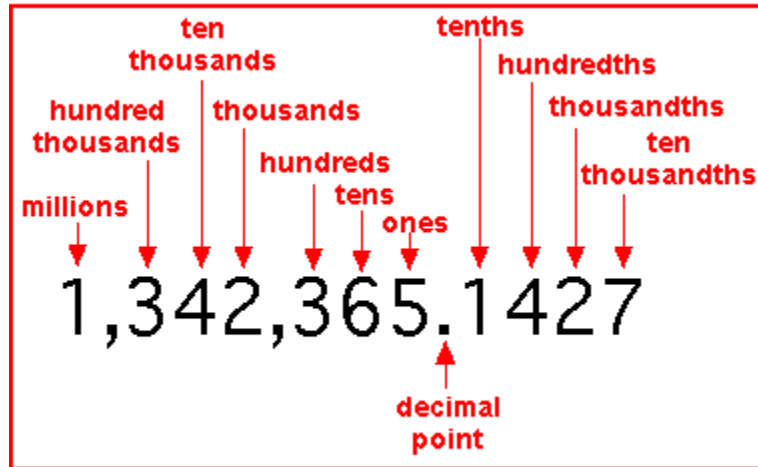
B. Rounding

5 Easy Steps of Rounding

1. UNDERLINE the column to be rounded to

2. CIRCLE the number to the right of the underlined number

3. If the circled number is ⓪ ① ② ③ ④ the underlined number stays the same

or

If the number in the circle is ⑤ ⑥ ⑦ ⑧ ⑨ ADD 1 to the underlined number

4. All the numbers to the right of the underlined number become ZEROS

5. All the numbers to the left of the underlined number stay the same, but must be put in your answer

Lesson 1.02 Number Operations

A. Order of operations

1. Operations in Parenthesis
2. Exponents
3. Multiplication/ Division from left to right
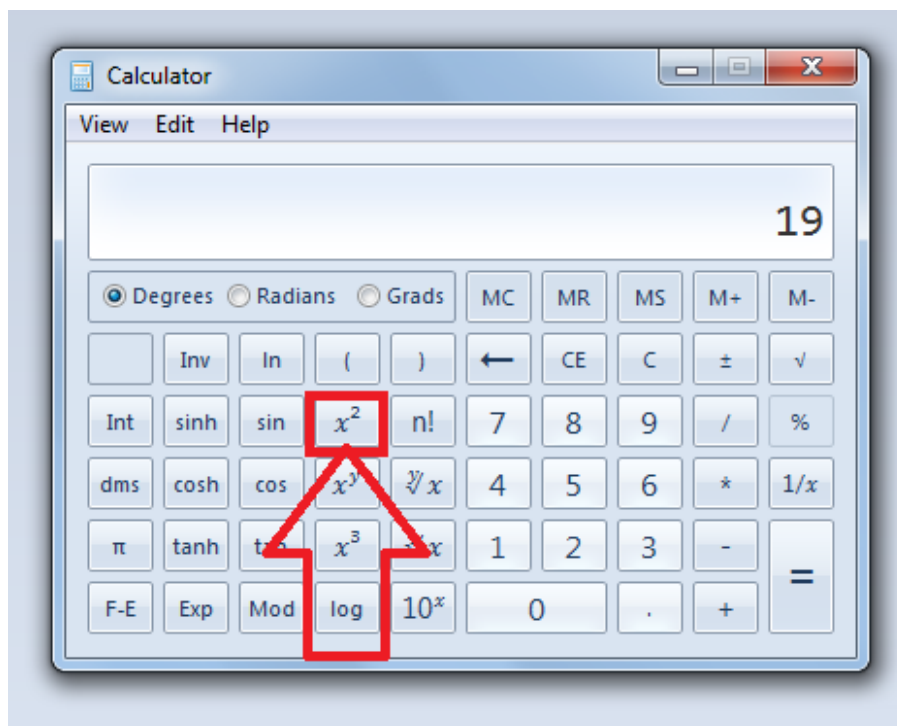4. Addition/ Subtraction from left to right

B. Different Forms

a. Exponential Form 7^2
b. Expanded Form 7x7
c. Standard Form   4, 956
d. Expanded Form 4(1000) + 9(100) +5(10)+6(1)
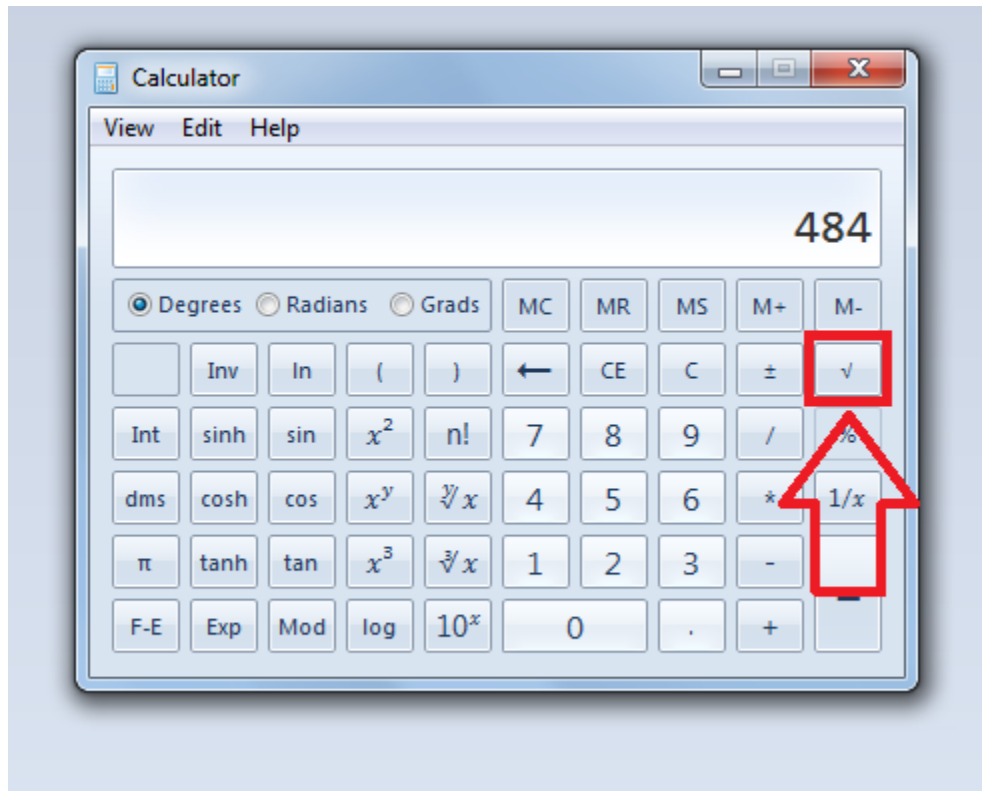
Lesson 1.03 Number Sense: Square and Square Roots

A. Squares

$19^2 = 361$

B. Square Roots

√484 = 22

Lesson 1.04 & 1.05 Word Problems

A. 5 Step – Plan
   a. Understand the problem
   b. Analyze the problem
   c. Plan how to solve the problem
   d. Solve the problem
   e. Check the answer

B. Using Data in Word Problems

Mean

the average of a set of numbers

$$\frac{\text{the sum of the data}}{\text{\# of data items}}$$

Median

the middle number in a set of data

Data must be in order first.

Mode

the number which appears most often in a set of numbers

Range

the difference between the lowest and highest numbers in a data set

Lesson 1.06 – Multiplication Properties

A. Distributive Property
   a. 2 x (20 + 5) = (2x 20) + (2x 5)
B. Commutative Property
   a. 7 x 2 = 2 x 7
C. Associative Property
   a. 2 x (4 x 3) = (2 x 4) x 3
D. Property of One
   a. 9 x 1 = 9
E. Zero Property
   a. 25 x 0 = 0

Lesson 1.07 – Multiplication: Decimals

Multiply the numbers. Don't worry about the decimal points just yet.

$$\begin{array}{r} 1.124 \\ \times\ 1.5 \\ \hline 5620 \\ 1124 \\ \hline 16860 \end{array}$$

Count the total number of decimal places (or hops). In this case there are 3 on the top and one on the bottom.

$$\begin{array}{r} 1.124 \\ \times\ 1.5 \\ \hline 5620 \\ 1124 \\ \hline 16860 \end{array}$$
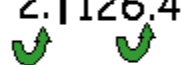
Place the decimal point in the answer. Use the same number of hops (decimal places) that you counted.

$$\begin{array}{r} 1.124 \\ \times\ 1.5 \\ \hline 5620 \\ 1124 \\ \hline 1.6860 \end{array}$$

Lesson 1.08 Division Decimals

Make the divisor a whole number by moving the decimal point to the right. Move the decimal point in the dividend by the same number of hops. This is the same as multiplying both numbers by 10 (for each hop.)

$$.2\overline{)12.64}$$

$$2.\overline{)126.4}$$

Place the decimal point in the answer lined up with decimal point in the dividend.

$$2\overline{)126.4}$$

Divide the numbers. Be sure that the decimal points remain lined up.

$$\begin{array}{r} 63.2 \\ 2\overline{)126.4} \end{array}$$

Lesson 1.09 Number Sense: Factors

A. Rules of Divisibility
   a. All even numbers are divisible by 2
   b. If the sum of the digits is a multiple of 3, the number is divisible by 3
   c. If the last two digits are divisible by 4, the whole number is divisible by 4
   d. If there is a 0 or 5 in the ones place of any number, the number is divisible by 5
   e. If there is a 0 or 5 in the ones place of any number, the number is divisible by 5
   f. If the sum of the digits of a number is 9, the number is divisible by 9
B. Prime Numbers
   a. If a number has only two factors, 1 and itself, it is called prime

Lesson 10 – Equivalent Fractions

A. Changing a fraction to a decimal

Example: 1 Change 1/4 to a decimal

1divid by 4 = 0.25

Example: 2 Change 4/8 to a decimal

4 divid by 8 = 0.5

B. Comparing Fractions

Compare $\dfrac{3}{4}$ & $\dfrac{2}{3}$

The LCM of 3 and 4 is 12

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12} \qquad \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

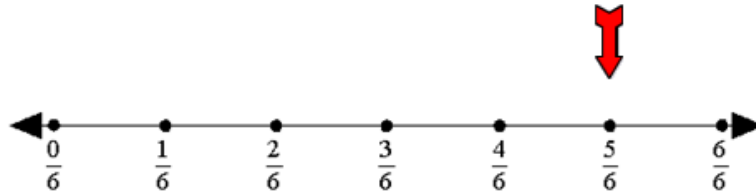$$\frac{9}{12} > \frac{8}{12}$$

C. Reciprocal Fractions

RECIPROCAL

$$\frac{3}{4} \qquad \frac{4}{3}$$

Lesson 1.11 Estimating with Fractions

A. Rounding fractions

$\frac{5}{6}$ is closer to 1 than to 0.

Therefore 5/6 will round to 1.

B. Adding fractions

$$\frac{3}{4} + \frac{1}{3} = \frac{3 \times 3}{4 \times 3} + \frac{1 \times 4}{3 \times 4}$$

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

$$= \frac{13}{12} = 1\frac{1}{12}$$

C. Subtracting fractions

$$\frac{5}{6} - \frac{2}{15} = \frac{5 \times 5}{6 \times 5} - \frac{2 \times 2}{15 \times 2}$$

$$= \frac{25}{30} - \frac{4}{30}$$

$$= \frac{21}{30}$$

$$= \frac{7}{10}$$

Lesson 1.12 Multiplying and Dividing Fractions

A. Multiplying Fractions

Multiply the numerators

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{}$$

Multiply the denominators

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

Reduce the fraction if necessary

$$\frac{6}{20} = \frac{3}{10}$$

B. Dividing Fractions

Invert the fraction that you are dividing by

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

Multiply the numerators and denominators

$$\frac{4}{5} \times \frac{3}{2} = \frac{12}{10}$$

Simplify the fraction if necessary

$$\frac{12}{10} = 1\frac{1}{5}$$