Math Pocket Guide

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Hundreds Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Addition – plus, sum, addend
Subtraction – minus, difference
Multiplication – times, product, factor
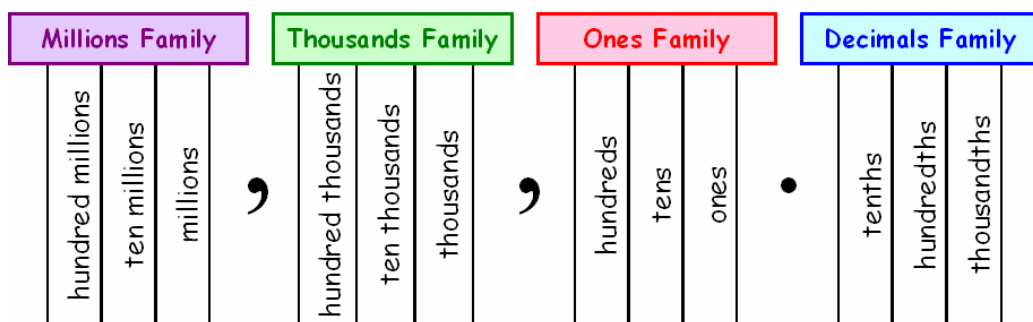**Division** – quotient, divisor, dividend

SYMBOLS

Addition: +

Subtraction: −

Multiplication: ×   *   •

Division: /   ÷

Vocabulary

Place Value Chart

Millions Family			Thousands Family			Ones Family			Decimals Family		
hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	tenths	hundredths	thousandths

1,000 = one thousand

10,000 = ten thousand

100,000 = one hundred thousand

1,000,000 = one million

0.1 = one ten**th**

0.01 = one hundred**th**

0.001 = one thousand**th**

Place Value

Estimation

Estimation Strategies
An estimation is an "about" number

Get a ballpark figure by:

Rounding – round each number to the largest place value, then do the problem

Front-End Estimation with an Adjustment add the first digits to get a "ball park figure," then look at the rest of the digits and adjust if necessary

Clustering – group numbers around a similar number; Example: 467 + 506 + 545 could be easily estimated as 500 + 500 + 500

Money

penny = one cent

100 pennies = 1 dollar
1/100 of a dollar/ .01 $\frac{1}{100}$ 1%

nickel = five cents

20 nickels = 1 dollar
5/100 of a dollar/ .05 $\frac{5}{100}$ 5%

dime = ten cents

10 dimes = 1 dollar
1/10 of a dollar/ .10 $\frac{10}{100}$ 10%

quarter = twenty-five cents

4 quarters = 1 dollar
¼ of a dollar/ .25 $\frac{25}{100}$ 25%
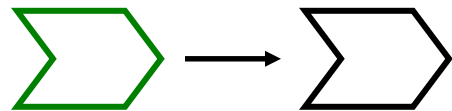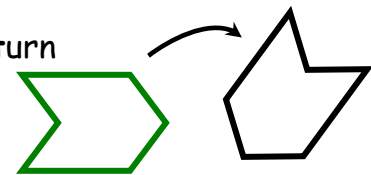
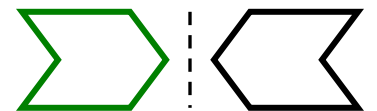**dollar** = one hundred cents = $1.00

$\frac{100}{100}$ 100%

Shapes

The shapes below ARE POLYGONS!
Polygons are closed figures with line segments.

Square   Rectangle   Triangle
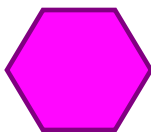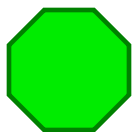
Pentagon   Hexagon   Octagon

Parallelogram   Trapezoid   Rhombus

The shapes below ARE NOT POLYGONS!

Ellipse →   Circle →

Transformations

translation = **sl**ide

rotation = turn

reflection = **fl**ip

MEAN

1. Add all the #'s in the data set

2. Divide that sum by how many #'s are in the data set

Example: 5, 7, 8, 2
  (data set)

  5 + 7 + 8 + 2 = 32
  32 ÷ 4 = **8**

RANGE

the difference between the largest number and the smallest number

Example: 5, 7, 8, 2
  8 – 2 = 6
  The range is 6.

Maximum: the biggest #
Minimum: the smallest #

MEDIAN

the *middle* number in an ordered series of numbers

Example:
  1, 3, **4**, 6, 7

  The median is 4.

Remember to put the numbers in order from least to greatest!

MODE

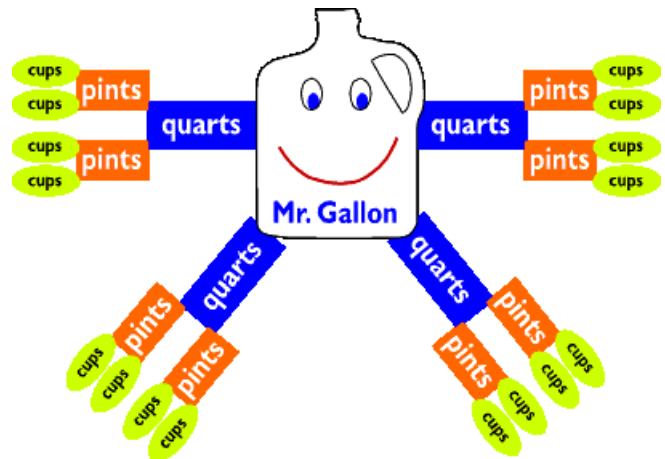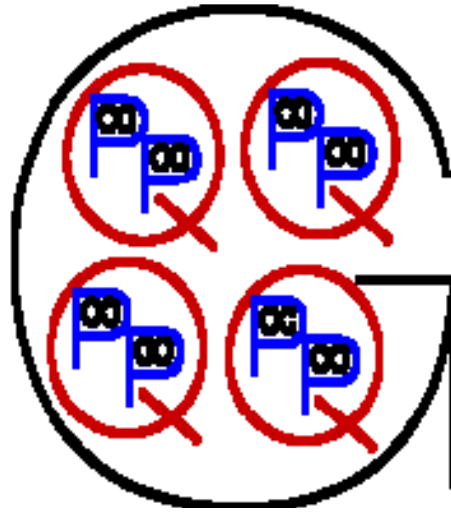the number that occurs *most often* in a data set

Example:
  1, 3, **4**, **4**, 5, 6

  The mode is 4.

There can be more than one mode in a set of data!

Mean, Median, Mode, Range

cups pints quarts Mr. Gallon quarts pints cups

Liquid Conversions
1 gallon = 4 quarts
1 quart = 2 pints
1 pint = 2 cups

Measurement - Liquid

Four-Step Method

1. **Identify the problem.**
   - *-What is the question?*
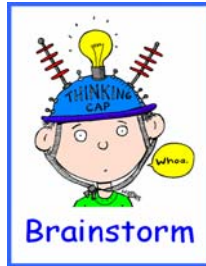   - *-What information is important?*

2. **Choose a strategy.**

3. **Solve it.**
   - *-Show your work and label!*

4. **Look back.**
   - *-Is your answer correct?*

Problem Solving STRATEGIES

Brainstorm

Make an Organized List

Use Logical Reasoning

Guess and Check

Work Backwards

Make a Picture or Diagram

Use Objects

Wow! This is a piece of cake!

Make it Simpler

Look for a Pattern

Boys	Girls
Joe	Amy
Tom	Sally
Alex	Kate

Use or Make a Table

Problem Solving

Addition and Subtraction

Work right to left beginning in the ones column.

Whole numbers – line up the ones place

Decimals – line up the decimal points in a straight line

Money – line up the decimal points and label the answer with a $ sign

Multiplication

Money – If there are cents in the problem, be sure to put a decimal point in the answer. Label with a $ sign.

2-digit x 2-digit – "Up and over, happy holder. Over and up. Then add."
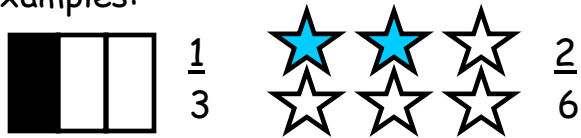
Division

Does McDonald's Serve Big Macs?

- ÷ **D**ivide
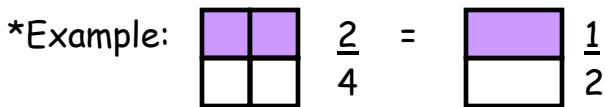- × **M**ultiply
- – **S**ubtract
- ⇓ **B**ring down

Computation

Fraction - a number that names *part of a whole* or *part of a group*

*Examples:

$\frac{1}{3}$ $\frac{2}{6}$

Equivalent Fractions - Two or more fractions that name the same amount

*Example: $\frac{2}{4}$ = $\frac{1}{2}$

**Mixed Numbers** - are made up of a whole number and a fraction

*Example: 2 ¼
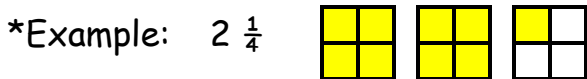
Adding and Subtracting - When adding and subtracting fractions with *like denominators*, add and subtract the NUMERATORS ONLY. Keep the denominators the same.
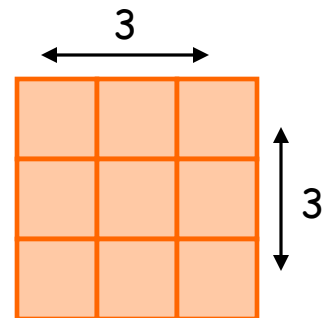
$\frac{2}{8}$ + $\frac{4}{8}$ = $\frac{6}{8}$

Fractions

Perimeter – the distance around a figure; to find the perimeter just ADD UP ALL THE SIDES

2 cm   3 cm

2 cm

2 + 3 + 2 = **7 cm**

Don't forget to label your answer!
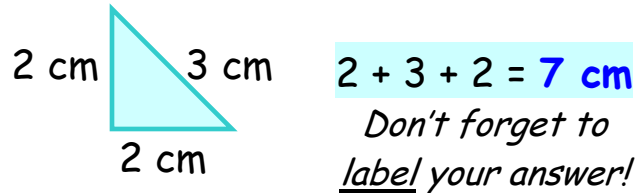
Area – the number of *square units* needed to cover a given surface

3

3

Area = length x width

3 x 3 = 9

The area of the surface above is **9 square units**.

Don't forget to label your answer in SQUARE units!

Perimeter and Area

Measurement Estimations

An **inch** (in.) is about the length of your thumb from the FIRST knuckle to the tip.

A **foot** (ft) is about the height of a cat.

One **yard** (yd) is about the length of a baseball bat.

One **meter** is about three inches longer than a baseball bat.

A **mile** (mi) is about the distance you can walk in 20 minutes.

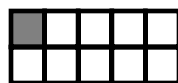A **kilometer** is about how far you can walk in 11 minutes.

The width of your little finger is about one **centimeter**.

Important Conversions
1 foot = 12 inches
1 yard = 36 inches
1 yard = 3 feet
1 mile = 5,280 feet
1 meter = 100 cm
1 kilometer = 1000 m
1 cm = 10 mm
1 pound = 16 ounces
1 ton = 2,000 pounds

Measurement

$= \dfrac{1}{10} = .10 = 10\%$

$= \dfrac{1}{8} = .125 = 12\frac{1}{2}\%$

$= \dfrac{1}{4} = .25 = 25\%$

$= \dfrac{1}{3} = .333 = 33\%$

$= \dfrac{3}{4} = .75 = 75\%$

$= \dfrac{1}{2} = .50 = 50\%$

Quarters can help with percent!

25%   50%   75%   100%

Analog

Digital

1 day = 24 hours

1 hour = 60 minutes

½ hour = 30 minutes

¼ hour = 15 minutes

1 minute = 60 seconds

am = before noon   **pm** = after noon

Fraction/Decimal/Percent/Time