3rd Grade Georgia Milestone Study Guide

Numbers and Operations

Place Value

Ten thousands	thousands		hundreds	tens	ones	decimal	tenths
2	6	,	7	5	9	.	3

Twenty six thousand, seven hundred fifty nine and three tenths

20,000 + 6,000 + 700 + 50 + 9 + 0.3

(2×10,000) + (6×1,000) + (7×100) + (5×10) + (9×1) + (3x0.1)

How many tens are in 750? There is a five in the tens place, but it takes 75 tens to make the number 750, so
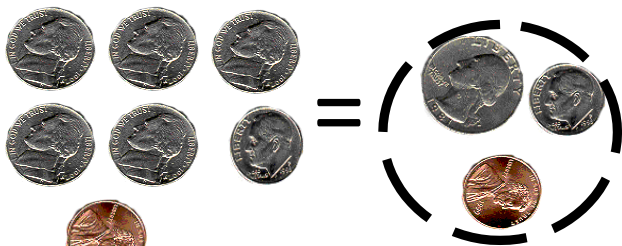
Estimation

329 + 175 =

329 is about 300 and 175 is about 200, so the answer is about 500

488 – 87 =

488 is about 500 and 87 is about 100, so the answer is about 400

Making Change with <u>fewest</u> coins

Multiplication

3 +3 +3 = 9
or
3 groups of 3 = 9
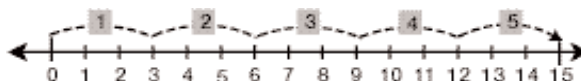or
3 × 3 = 9

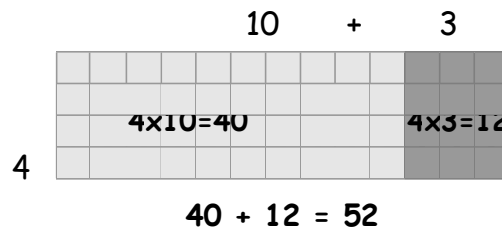5x3=15   array

Area Model

```
        10      +      3

  ┌────────────────┬──────┐
4 │   4x10=40      │4x3=12│
  └────────────────┴──────┘
```

40 + 12 = 52

Multiplying by multiples of 10

6x7=42   so...   6̲0 x 7̲ = 42̲0

2x15=30   so...   2̲0 x 15̲0 = 3̲,0̲00

Partial Products

```
39              30 + 9
x 4             x    4
               36  (4 x 9)
             + 120 (4 x 30)
```

Estimation

```
537
x   8
```

Estimate:
500 x 8 = 4,000

The product will be about 4,000

<u>Identity Property of Multiplication</u>
- **Any number multiplied by 1 will keep its original value.**
- **23 x 1 = 23,   1 x 8 = 8**

<u>Associative Property of Multiplication</u>
- When multiplying any 3 numbers, changing the grouping does not change the product.
- (3 x 4)5   3(4 x 5)
  12 x 5 = 60   3 x 20 = 60

<u>Commutative Property of Multiplication</u>
- When multiplying any 2 or more numbers, changing the order does not change the product.
- 3 · 4 = 4 · 3
  12 = 12
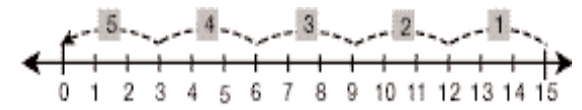
Division

Division is the inverse of multiplication

12÷4=3   and   4x3=12

Division can be thought of as repeated

156

subtraction
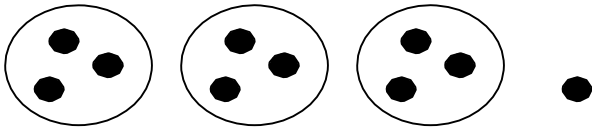
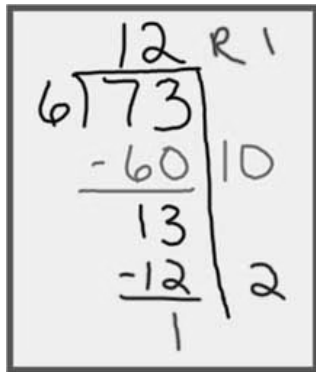**15-3-3-3-3-3=0   so   15÷3=5**

Division with a remainder

Joe and his two friends wanted to share 10 apples. How many apples did each person get? Were there any left over?

Partial Quotients – a mental math strategy
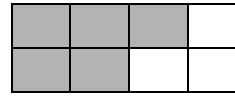
Fractions

numerator

$\frac{3}{4}$

This tells how many parts you have out of the whole.

denominator

$\frac{3}{4}$
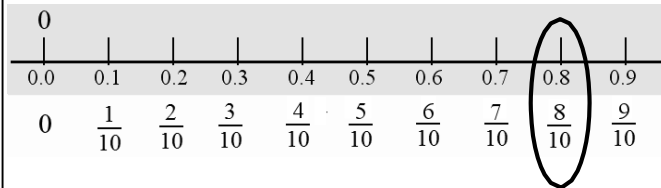
This tells how many parts make up the whole.

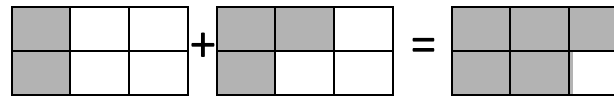Common fractions are seen and used on a daily basis.   Examples: 1/4 , 2/3

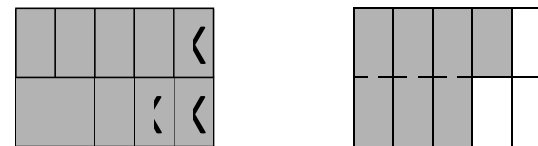Decimal fractions have a denominator of 10 and can be written as a decimal.
Examples: 3/10 = 0.3   7/10 = 0.7
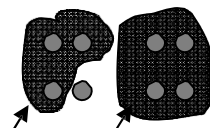
0									
0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{9}{10}$

Adding and Subtracting Fractions with like denominators
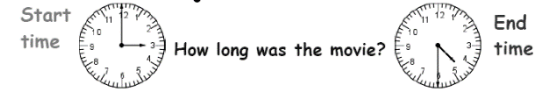
2/6   +   3/6   =   5/6

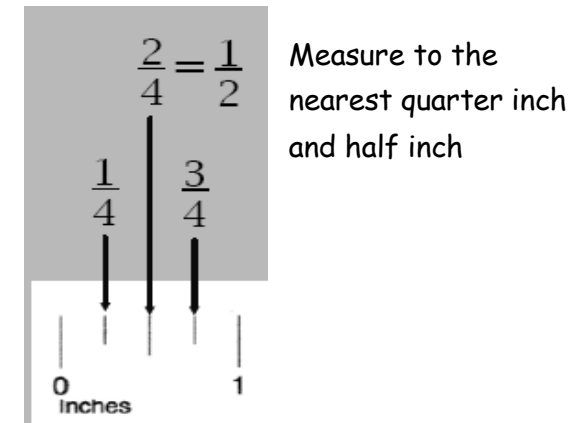10/10 – 3/10   =   7/10

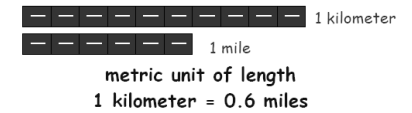3/8 + 4/8 = 7/8

Measurement

elapsed time

Start time   How long was the movie?   End time

mile

1 kilometer

1 mile

customary unit of length
1 mile = 1.6 kilometers

kilometer (km)

1 kilometer

1 mile

metric unit of length
1 kilometer = 0.6 miles

$\frac{2}{4} = \frac{1}{2}$

Measure to the nearest quarter inch and half inch

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

0
inches   1
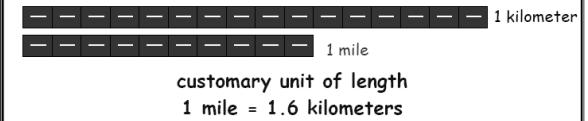
You would use **kilometers** to measure the height of a building , but you would use **millimeters** to measure the length of a ladybug.
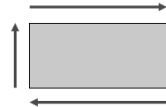
centimeter
(cm)

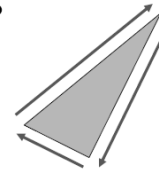Approximately **half the** length of the 1st joint of your finger
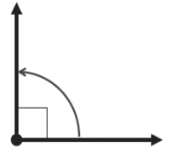
(metric unit for measuring length)

meter (m)

The door into your classroom is slightly smaller than a meter wide.

(metric unit for measuring length and distance)

inch

Approximate length of 1st joint of your finger

foot

Approximate length of 1 sheet of paper

(customary unit of measure: 1 foot = 12 inches)

yard

The door into your classroom is approximately 1 yard wide.

(customary unit of measure: 1 yard = 36 inches = 3 feet)

perimeter

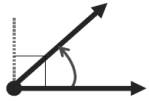**(distance around)**

Perimeter is summing the lengths of the sides.

Area   9 sq units

Area is the amount of surface space that a flat object has.   Area is reported in the amount of square units.
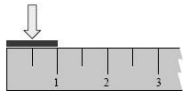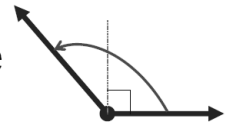
Geometry

scalene triangle

All three sides have different lengths

isosceles triangle
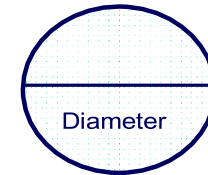
At least two equal sides and two equal angles

equilateral triangle

Three equal sides and three equal angles

right angle

(an angle whose measure is **exactly 90°**)

acute angle

(an angle whose measure is smaller than 90°)

obtuse angle

(an angle whose measure is larger than 90°)

Diameter

Diameter: A line segment passing through the center of a circle with endpoints on the circle.
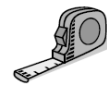
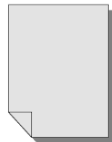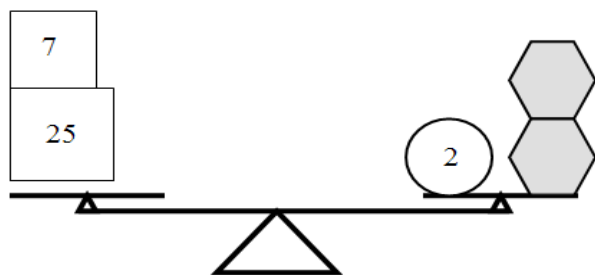**Radius:** The distance from the center of a circle to any point on the circle.
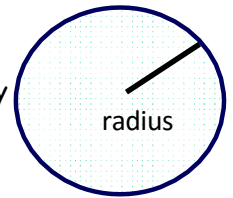
radius

Vertex: The common endpoint of two line segments that serve as two sides of a polygon. (plural: vertices)

Side: A straight line segment that forms part of a polygon

Algebra

- Patterns can be *numerical*   EX: 2,4,6,8
- Patterns might be *geometrical* as a tile pattern on the floor with 2 blue tiles followed by 1 white tile
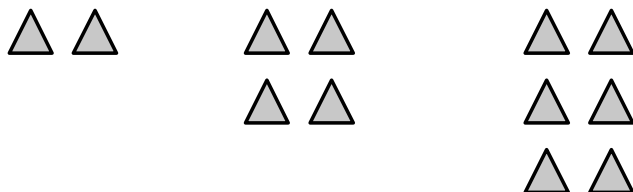- Patterns may also be *alternating* EX: 1,5, 2,6,3,7,4 (add 4, subtract 3).

□□□+ 3 = 20   or   D + D = 20

32 = 2+ ⬡ + ⬡
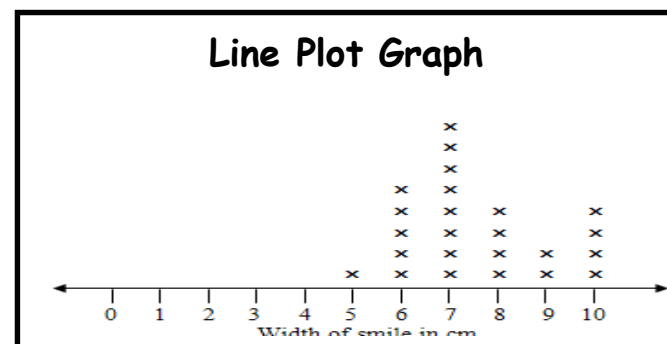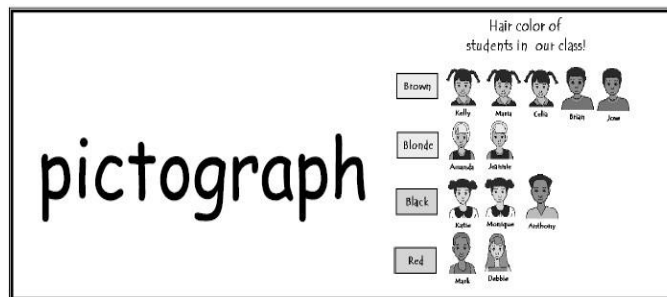
32 = 2 + 15 +15

Growing Pattern

Data Analysis and Probability

bar graph

Venn diagram

The yellow circle has the numbers 0, 3, 6, and 9.

The blue circle has the numbers 0, 6, 12.

Both circles have the numbers 0 and 6.

pictograph

Line Plot Graph

Width of smile in cm
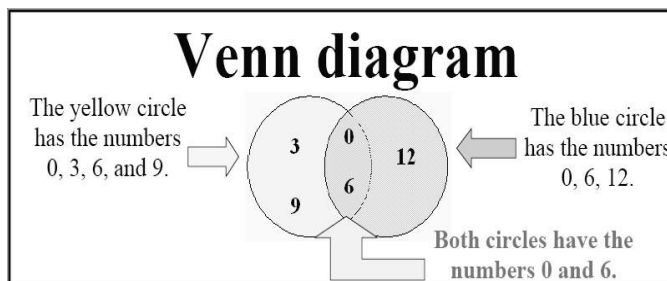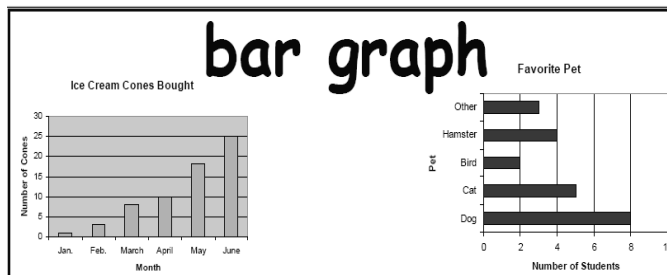
- **Bar graph**: A way of displaying data using horizontal or vertical bars so that the height or length of the bars indicates its value.

- **Venn Diagram**: A diagram using circles or other shapes, to show the relationship between sets. Often used in comparing and contrasting.

- **Pictograph**: A graph in which the data is displayed in a table using pictures or symbols, often using a key to explain what the picture represents.

- **Scale**: the intervals that the data will count up

- **Line Plot**: also called a dot plot, uses an "x" to show a piece of data