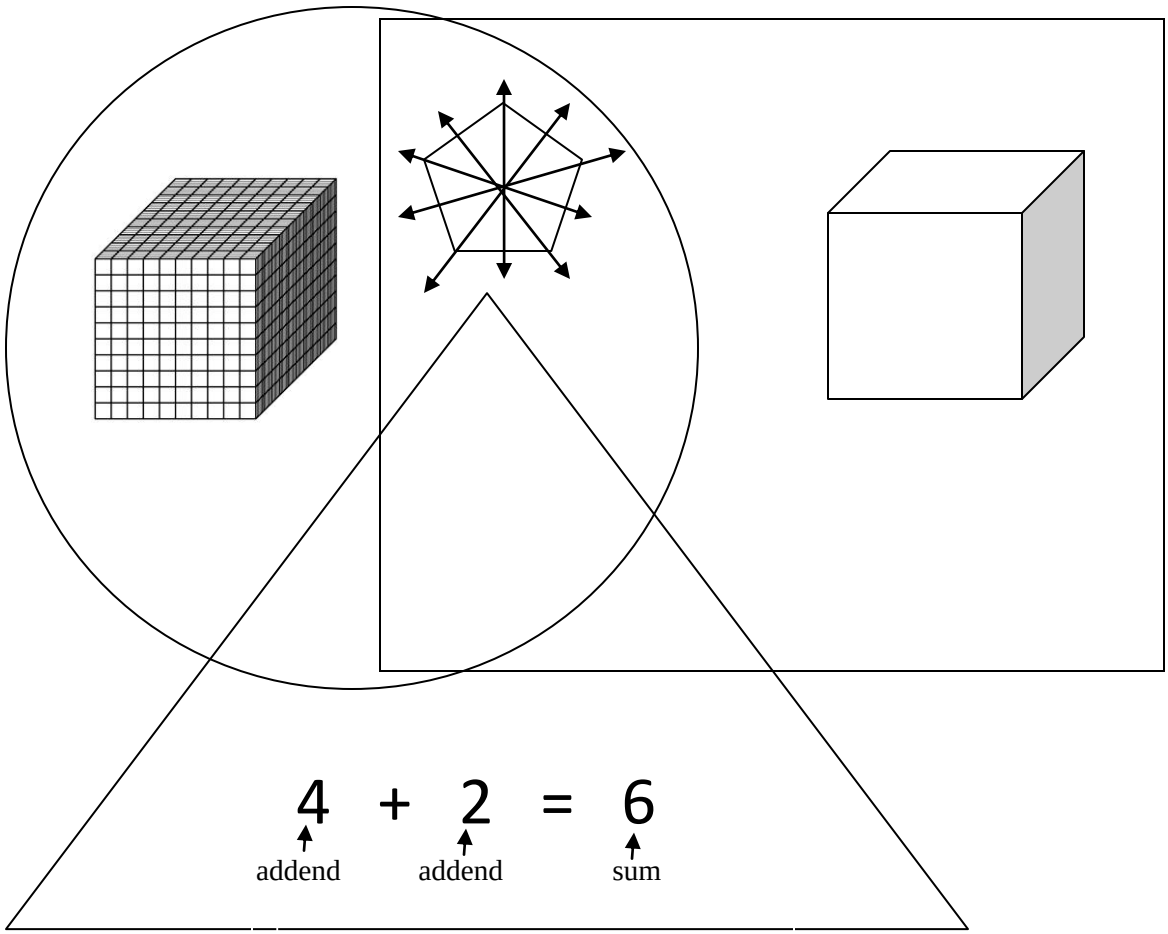
Fountain Valley School District

Mathematics



Compiled by

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Tamura School

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Addition

$$\underset{\text{addend}}{4} + \underset{\text{addend}}{2} = \underset{\text{sum}}{6}$$

We say, "Four plus two equals six."

$$\begin{array}{r} \leftarrow \text{addend} \\ \leftarrow \text{addend} \\ \hline 6 \leftarrow \text{sum} \end{array}$$

Key Words:

- **in all**
- **altogether**
- **total**

Subtraction

$$6 - 1 = \underset{\text{difference}}{5}$$

We say, "Six minus one equals five."

$$\begin{array}{r} 6 \\ -1 \\ \hline 5 \leftarrow \text{difference} \end{array}$$

Key Words:

- **how many more**
- **how many fewer**
- **how much less**
- **how many left**

Multiplication

$$\underset{\text{factor}}{4} \times \underset{\text{factor}}{2} = \underset{\text{product}}{8}$$

$$\begin{array}{r} \leftarrow \text{factor} \\ \leftarrow \text{factor} \\ \hline 8 \leftarrow \text{product} \end{array}$$

We say, "Four times two equals eight."

Each group has the same number, so we can multiply.

Division

$$\underset{\text{dividend}}{42} \div \underset{\text{divisor}}{6} = \underset{\text{quotient}}{7}$$

$$\begin{array}{r} 7 \leftarrow \text{quotient} \\ \text{divisor} \rightarrow 6\overline{)\,42} \leftarrow \text{dividend} \end{array}$$

We say, "Forty-two divided by six equals seven."

$$42 \div 6 = \square$$

Think $\square \times 6 = 42$

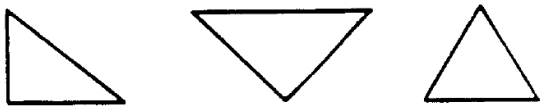
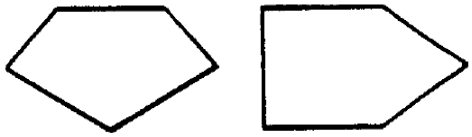
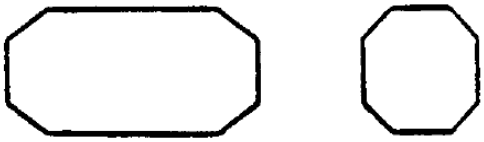
The missing factor is 7

$$7 \times 6 = 42$$

Polygons

A **polygon** is a closed plane figure made up of line segments. The line segments form the sides of the polygon. Two sides meet at a point called the **vertex.**

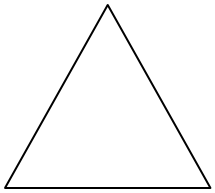
Polygons are named by the number of sides or angles they have. The number of sides is equal to the number of angles.

Name of Polygon	Number of Sides	Number of Angles	Examples
Triangle	3	3	
Quadrilateral	4	4	
Pentagon	5	5	
Hexagon	6	6	
Octagon	8	8	

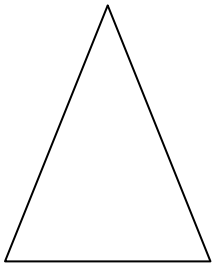
TRIANGLES

The roof of this building is called a geodesic dome. It is made of many triangles.

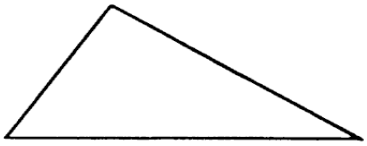
Triangles are named according to their sides and angles.



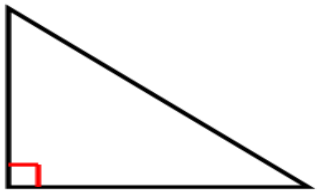
-An **equilateral** triangle has all congruent sides.



-An **isosceles** triangle has two congruent sides.



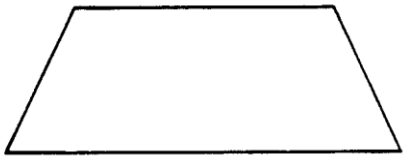
-A **scalene** triangle has no congruent sides.



-A **right** triangle has one right angle.

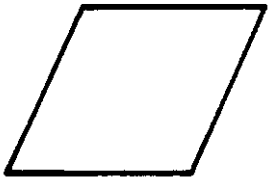
QUADRILATERALS

Quadrilaterals are polygons with four sides and four angles.



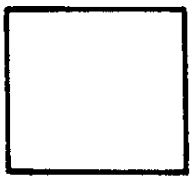
-A **trapezoid** is a quadrilateral with exactly one pair of opposite sides parallel.

-A **parallelogram** is a quadrilateral with opposite sides parallel and congruent.



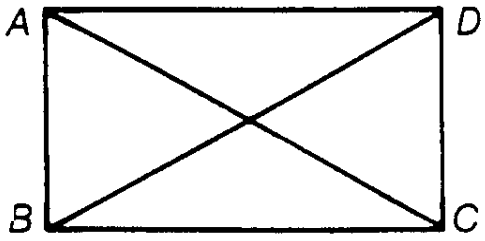
-A **rhombus** is a parallelogram with all sides congruent.

-A **rectangle** is a parallelogram with four right angles



-A **square** is a rectangle with all sides congruent

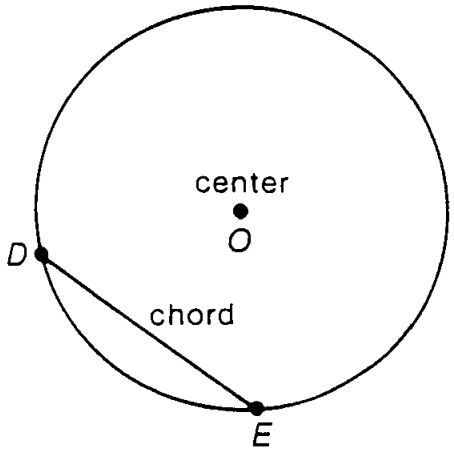
-A **diagonal** is a segment that joins two vertices of a polygon but is not a side. $\overline{AC}$ and $\overline{BD}$ are diagonals.



CIRCLES

All of the points on a **circle** are the same distance from a point called the **center**. A circle is named by its center. This is circle *O*.

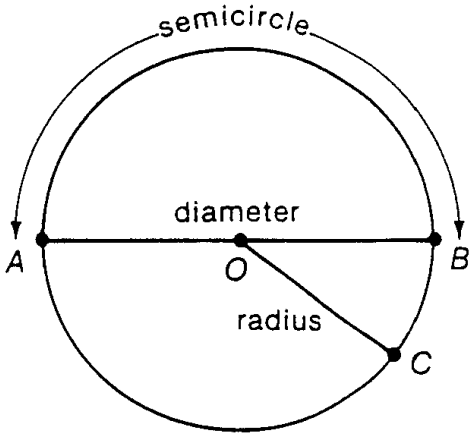
A **chord** is a line segment with both endpoints on the circle. $\overline{DE}$ is a chord.



A **diameter** is a line segment that passes through the center of the circle and has both endpoints on the circle. $\overline{AB}$ is a diameter.

A **radius** is a line segment with one endpoint on the circle and the other endpoint at the center. The length of a radius is one half the length of a diameter. $\overline{OC}$ is a radius.

A **semicircle** is a half circle. $\overset{\frown}{AB}$ is a semicircle.

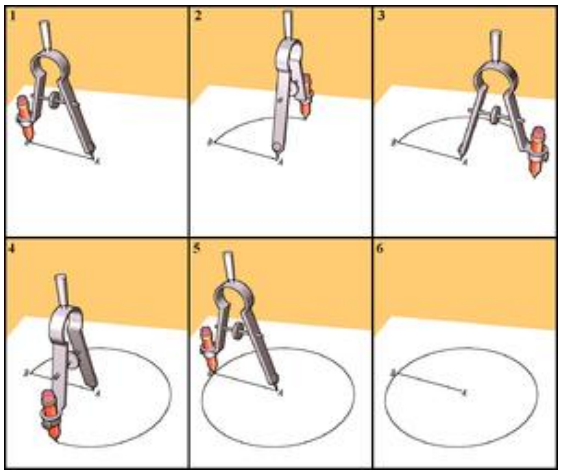


Use a compass to construct a circle.

Step 1 Put the metal tip at a point to be the center.

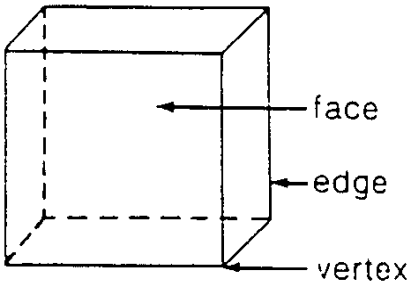
Step 2 Open the compass to the length of the radius.

Step 3 Rotate the pencil around the center.

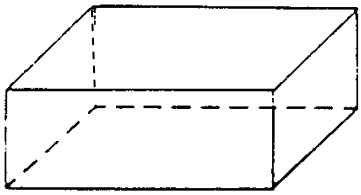


SPACE FIGURES

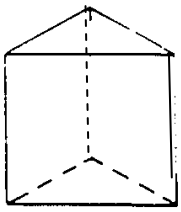
The **cube** is a **prism** with 6 flat surfaces called **faces**. Each face has the shape of a square. There are 12 **edges** where the faces meet. There are 8 vertices where the edges meet.



A prism has two parallel and congruent faces. It is named by the shape of its base.

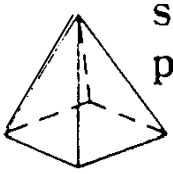


rectangular prism

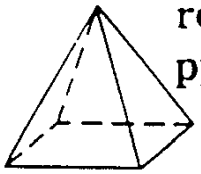


triangular prism

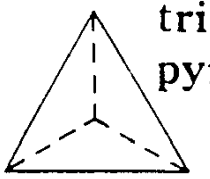
The figures below are **pyramids**. The faces are triangles with a common vertex. Each base is a polygon.



square pyramid



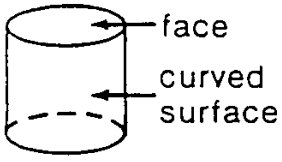
rectangular pyramid



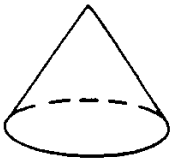
triangular pyramid

A **cylinder** has two parallel faces that are congruent circles. A **cone** has one circular flat face and one vertex.

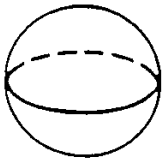
cylinder



cone



sphere



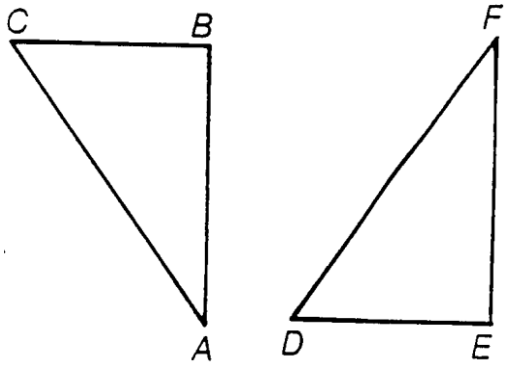
CONGRUENT & SIMILAR FIGURES

Congruent figures have the same size and shape.

Similar figures have the same shape. They may or may not have the same size.

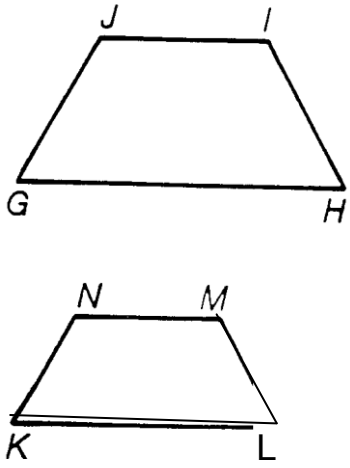
More Examples

Trace triangle *ABC*. Flip it over. Turn it or slide it until it fits over triangle *DEF*.



Triangle *ABC* is congruent to triangle *DEF*.

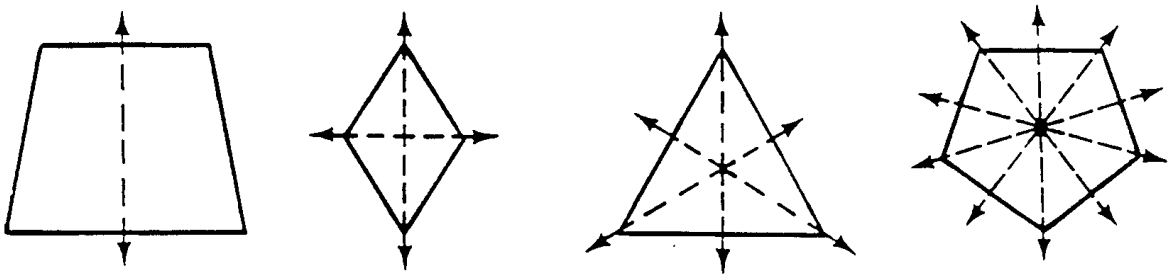
Quadrilateral *GHIJ* is similar to quadrilateral *KLMN*.



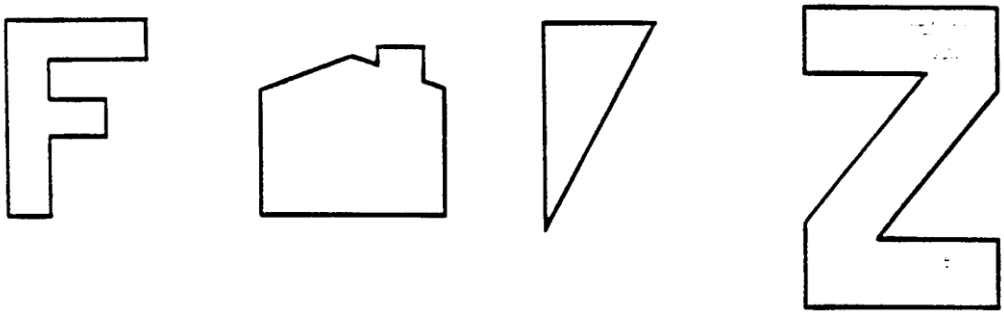
LINE OF SYMMETRY

A **line of symmetry** divides a figure into two congruent parts. One side of the White House is the mirror image of the other side.

Some figures have one or more lines of symmetry.



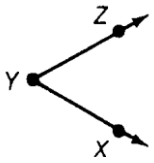
Some figures do not have any lines of symmetry.



ANGLES

An **angle** is formed by two rays with a common endpoint called the **vertex**.

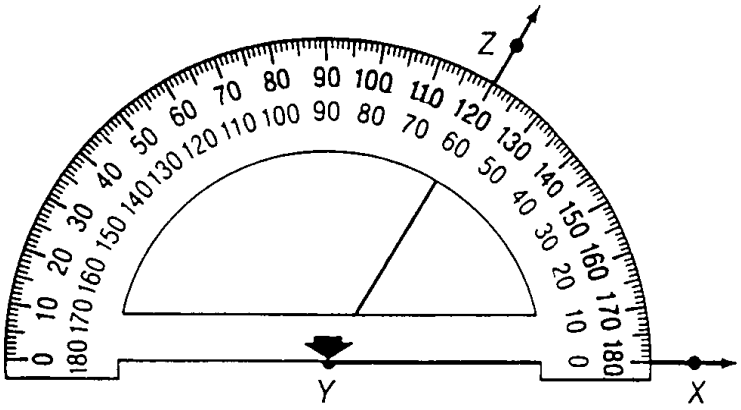
This is angle *XYZ*. Point *Y* is the vertex.



write
$\angle XYZ$

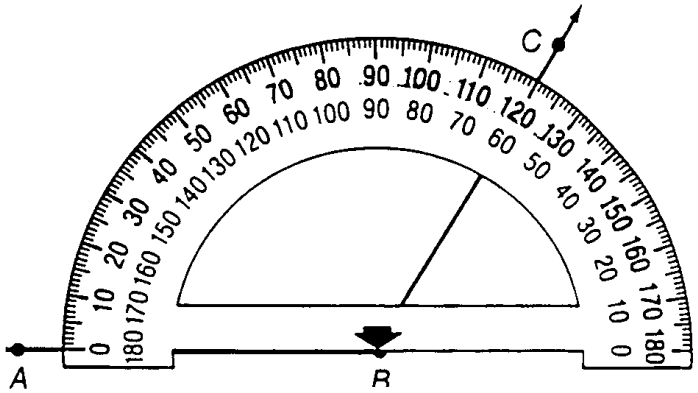
A **protractor** is used to measure angles. The unit of measure is the **degree** (°). The center of the protractor is placed on the vertex of the angle.

$\overrightarrow{YX}$ is at 0°.
Read the inner scale.
The measure of $\angle XYZ = 60°$.



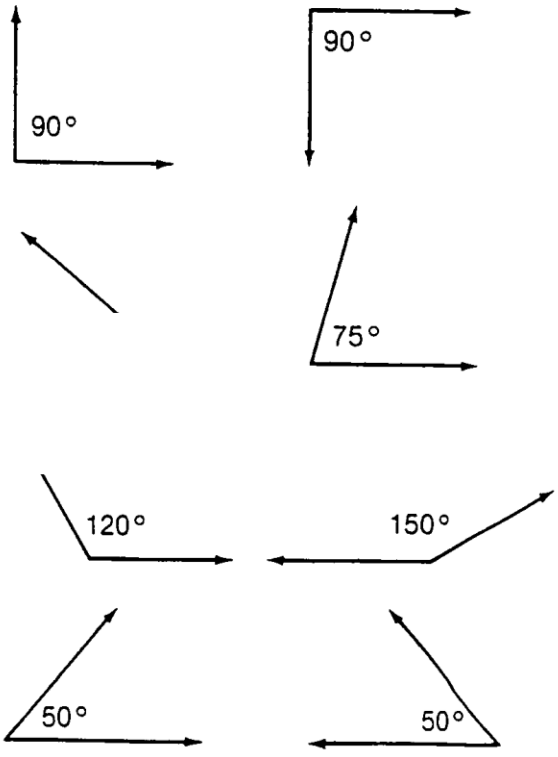
Measure angle *ABC*.
The vertex of the angle is at the center of the protractor.

$\overrightarrow{BA}$ is at 0°.
Read the outer scale.
The measure of $\angle ABC = 120°$.



Angles are named according to their measures.

- A **right angle** measures 90°.
- An **acute angle** measures less than 90°.
- An **obtuse angle** measures greater than 90° but less than 180°.
- Two angles with the same measure are said to be **congruent.**



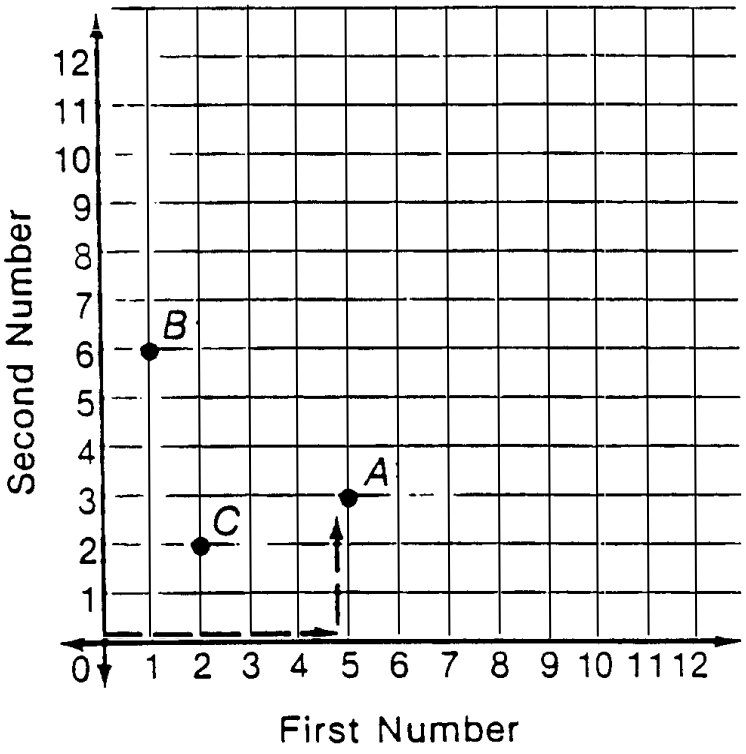
ORDERED PAIR

An ordered pair of numbers can be used to locate point *A*.

Follow these steps.

1. Start at 0.
2. Move 5 spaces to the right.
3. Move 3 spaces up.

Ordered pair (5,3) locates point *A*.



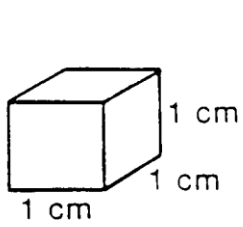
More Examples

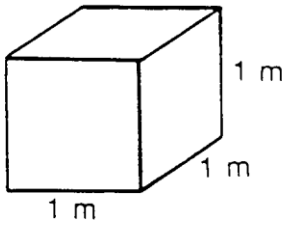
a. To locate point *B*:
   1. Move 1 space to the right.
   2. Move 6 spaces up.
   3. Ordered pair (1,6) locates point *B*.

b. To locate point *C*:
   1. Move 2 spaces to the right.
   2. Move 2 spaces up.
   3. Ordered pair (2,2) locates point *C*.

An **ordered pair** of numbers is used to locate a point in a plane.

VOLUME



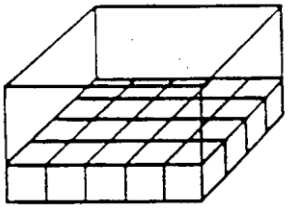


The **volume** of a space figure is the number of cubic units that fit inside the figure.

The **cubic centimeter** (**cm³**) and **cubic meter** (**m³**) are commonly used metric units of volume

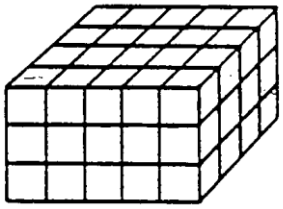
Find the volume of the box.

Step 1
Count the cubes in one layer.



5 x 4 = 20 cubes

Step 2
Count the layers.



3 layers

Step 3
Multiply to find the volume.

$3 \times 20 = 60$

The box holds 60 cubic centimeter blocks.

You can also multiply to find the volume.

To find the volume, multiply the length, the width, and the height.

V = l x w x h

V = 5 x 4 x 3 = 60

The volume of the box is 60 cm³.

NUMBER AND ORDINAL NUMBERS

NUMBERS	
1	one
2	two
3	three
4	four
5	five
6	six
7	seven
8	eight
9	nine
10	ten
11	eleven
12	twelve
13	thirteen
14	fourteen
15	fifteen
16	sixteen
17	seventeen
18	eighteen
19	nineteen
20	twenty
21	twenty-one
22	twenty-two
23	twenty-three
24	twenty-four
25	twenty-five
26	twenty-six
27	twenty-seven
28	twenty-eight
29	twenty-nine
30	thirty
40	forty
50	fifty
60	sixty
70	seventy
80	eighty
90	ninety
100	hundred

ORDINAL NUMBERS	
1st	first
2nd	second
3rd	third
4th	fourth
5th	fifth
6th	sixth
7th	seventh
8th	eighth
9th	ninth
10th	tenth
11th	eleventh
12th	twelfth
13th	thirteenth
14th	fourteenth
15th	fifteenth
16th	sixteenth
17th	seventeenth
18th	eighteenth
19th	nineteenth
20th	twentieth
21st	twenty-first
22nd	twenty-second
23rd	twenty-third
24th	twenty-fourth
25th	twenty-fifth
26th	twenty-sixth
27th	twenty-seventh
28th	twenty-eighth
29th	twenty-ninth
30th	thirtieth
40th	fortieth
50th	fiftieth
60th	sixtieth
70th	seventieth
80th	eightieth
90th	ninetieth
100th	hundredth

MATHEMATICAL SYMBOLS

$	dollars	≠	is not equal to
¢	cents	<	less than
%	percent	>	greater than
π	pi	≥	is greater than or equal to
$3.2\overline{1}$	repeating decimal	≤	is less than or equal to
45°	(forty-five) degrees	~	is similar to
F	Fahrenheit	≅	is congruent to
C	centigrade	+4	positive integer
•	point	−4	negative integer
√	square root	—	line segment
⌒	arc	↔	line
÷	divide	→	ray
⌐	divide	∠	angle
+	add	m∠	measure of angle
−	subtract	△	triangle
×	multiply	⊥	perpendicular
•	multiply	∥	parallel
=	is equal to	5^{3}	exponent

WHICH MEASURES?

Length

Metric System

1 centimeter (cm) =10 millimeters (mm)
1decimeter (dm) = 10 centimeters (cm)
1 meter (m) = 10 decimeters (dm)
1 meter (m) = 100 centimeters (cm)
1 meter (m) = 1000 millimeters (mm)
1 decameter (dkm) = 10 meters (m)
1 hectometer (hm) = 100 meters (m)
1 kilometer (km) = 100 decameters (dkm)
1 kilometer (km) = 1000 meters (m)

U.S. System

1 foot (ft) = 12 inches (in)
1 yard (yd) = 36 inches (in)
1 yard (yd) = 3 feet (ft)
1 mile (mi) = 5280 feet (ft)
1 mile (mi) = 1760 yards (yd)

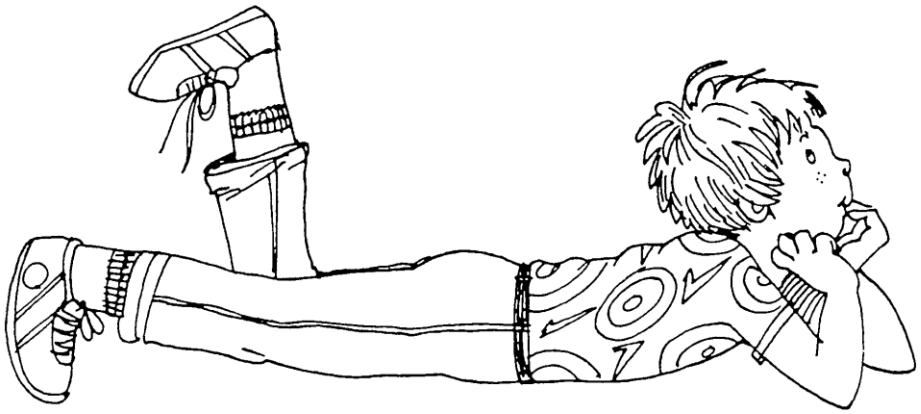
Capacity

Metric System

1 teaspoon = 5 milliliters (mL)
1 tablespoon = 12.5 milliliters (mL)
1 liter (L) = 1000 milliliters (mL)
1 liter (L) = 1000 cubic centimeters (cm^3)
1 liter (L) = 1 cubic decimeter (dm^3)
1 liter (L) = 4 metric cups
1 kiloliter (kL) = 1000 liters (L)

U.S. System

1 tablespoons (T) = 3 teaspoons (t)
1 cup (c) = 16 tablespoons (T)
1 cup (c) = 8 fluid ounces (fl oz)
1 pint (pt) = 2 cups (c)
1 pint (pt) = 16 fluid ounces (fl oz)
1quart (qt) = 4 cups (c)
1 quart (qt) = 2 pints (pt)
1 quart (qt) = 32 fluid ounces (fl oz)
1 gallon (gal) = 16 cups (c)
1 gallon (gal) = 8 pints (pt)
1 gallon (gal) = 4 quarts (qt)
1 gallon (gal) = 128 fluid ounces (fl oz)



WHICH MEASURES? Cont.

Weight

Metric System

1 gram (g) = 1000 milligrams (mg)
1 kilogram (kg) = 1000 grams (g)
1 metric ton (t) = 1000 kilograms (kg)

U.S. System

1 pound (lb) = 16 ounces (oz)
1 ton (T) = 2000 pounds (lb)

Time

1 minute (min) = 60 seconds (sec)
1 hour (hr) = 60 minutes (min)
1 day = 24 hours (hr)
1 week = 7 days
1 year (yr) = 52 weeks
1 year (yr) = 365¼ days
1 decade = 10 years
1 century = 100 years

ALL KINDS OF FORMULAS

Perimeter	
Perimeter of a triangle	$P = a + b + c$
Perimeter of a rectangle	$P = 2(h + w)$
Circumference of a circle	$C = 2\pi r$
Area	
Area of a circle	$A = \pi r^2$
Area of a square	$A = s^2$
Area of a triangle	$A = \frac{1}{2}bh$
Area of a trapezoid	$A = h\frac{(b_1 + b_2)}{2}$
Volume	
Volume of a rectangular or triangular prism	$V = Bh$ (B is area of base)
Volume of a pyramid	$V = \frac{1}{3}Bh$ (B is area of base)
Volume of a cube	$V = s^3$
Volume of a cylinder	$V = \pi r^2 h$
Volume of a cone	$V = \frac{1}{3}\pi r^2 h$
Volume of a sphere	$V = \frac{4}{3}\pi r^3$

PROBLEM SOLVING PROCESS

POLYA'S FOUR STEP PROBLEM SOLVING PROCESS

Step 1: Understand the problem

a. Do you understand all the words?
b. Can you restate the problem in your own words?
c. Do you know what is given?
d. Do you know what the goal is?
e. Is there enough information?
f. Is there extraneous information?
g. Is this problem similar to another problem you've solved?

Step 2: Devise a plan. Can one of the following strategies be used?

a. Guess and check
b. Use a variable
c. Look for a pattern
d. Make a list
e. Solve a simpler problem
f. Draw a picture
g. Draw a diagram
h. Use deduction
i. Work backwards
j. Write a computer program
k. Use number theory
l. Solve an equivalent problem
m. Use indirect reasoning
n. Use cases
o. Solve an equation

Step 3: Carry out the plan

a. Implement the strategy you've chosen until the problem is solved or until a new course of action is suggested.
b. Give yourself a reasonable period of time to solve the problem. If you are not successful, seek hints from others or put the problem aside for a while. (You may have a flash of insight when you least expect it!)
c. Don't be afraid of starting all over. Many times a fresh start and a new strategy leads to success.

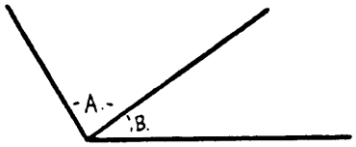
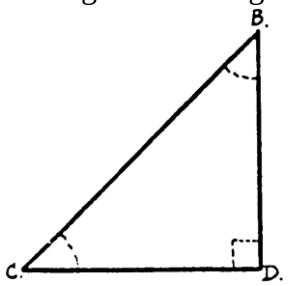
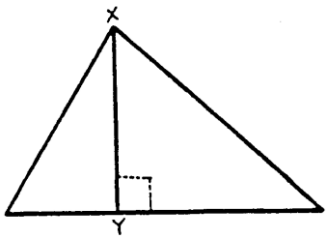
Step 4: Look back

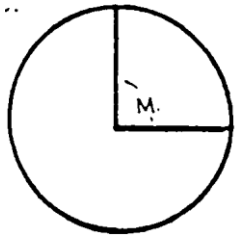
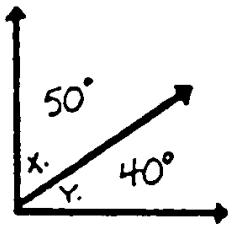
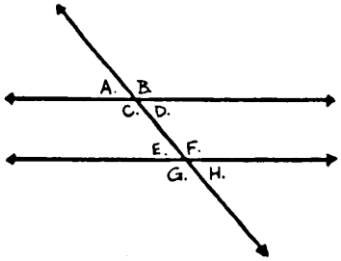
a. Is your solution correct? Does your answer satisfy the statement of the problem?
b. Can you see an easier solution?
c. Can you see how you can extend your solution to a more general case?

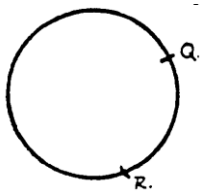
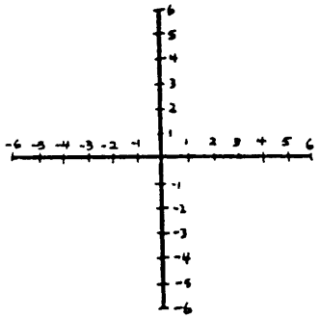
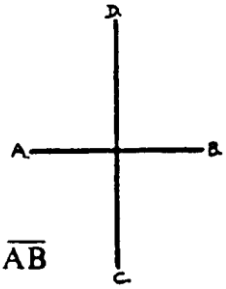
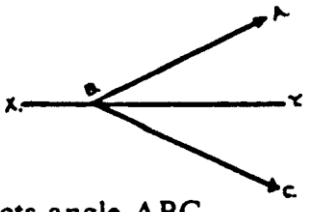
Name _____ Date _____

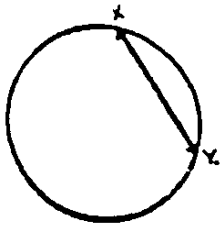
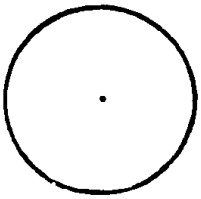
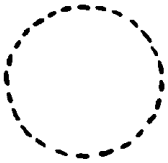
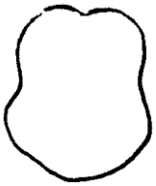
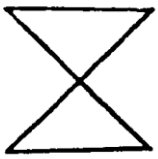
NUMBERS	+ , - , × , ÷	WRITE / WORK	ANSWER

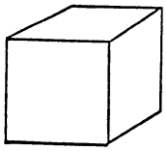
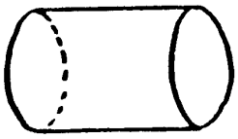
MATH TERMS FOR EVERY OCCASION

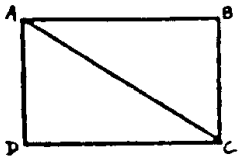
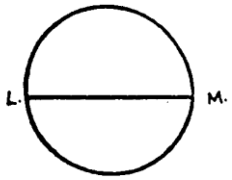
Math Terms	Definitions
Addend	- A number being added in an addition problem ▪ In the equation 4 + 7 = 11, 4 and 7 are addends
Addition	- An operation combining two or more numbers
Additive Inverse	- For a given number, the number that can be added to give a sum of 0 ▪ -4 is the additive inverse of +4 because -4 + (+4) = 0
Adjacent Angle	- Angles that have the same vertex and a common side between them  ▪ Angle A is adjacent to angle B.
Adjacent Side	- The leg next to the given angle in a right triangle  ▪ Side $\overline{CD}$ is adjacent to angle C.
Altitude of a Triangle	- The distance between a point on the base and the vertex of the opposite angle, measured along a line which is perpendicular to the base (the altitude is also referred to as the height of the triangle)  ▪ Segment $\overline{XY}$ is the altitude in this triangle.

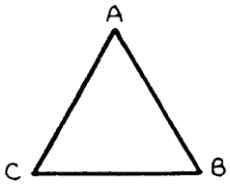
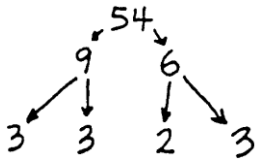
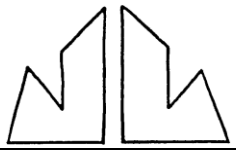
Angle	- A figure formed by two rays having a common endpoint (vertex)	
	Acute Angle Right Angle Obtuse Angle Straight Angle	▪ An *acute angle* measures less than 90º (see #1). ▪ A *right angle* measures 90º (see #2). ▪ An *obtuse angle* measures more than 90º and less than 180º (see #3). ▪ A *straight angle* measures 180º (see #4). 
	Central Angle	- an angle formed by two radii of a circle.  ▪ Angle M is a central angle.
	Complementary Angles	- two angles whose combined measures equal 90 º  ▪ X and Y are complementary angles.
	Congruent angles Corresponding angles Supplementary angles Vertical Angles	1. Congruent angles – angles having the same measure 2. Corresponding angles – angles which are formed when a line intersects two parallel lines; corresponding angles are congruent 3. Supplementary angles – two angles whose combined measured equal 180 º 4. Vertical angles – angles which are formed opposite one another when two lines intersect; vertical angles are congruent  ▪ B and F are corresponding angles ▪ A and B are supplementary angles ▪ E and H are vertical angles

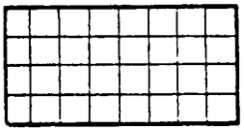
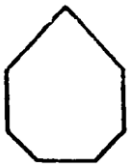
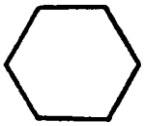
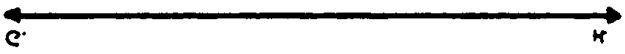
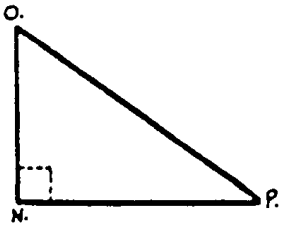
Arc	- A part of a circle between any two points on the circle  ▪ Segment $\overset{\frown}{QR}$ is an arc.
Area	- The measure of the region inside a closed plane figure; area is measured in square units
Associative Property For Addition and Multiplication	- The rule stating that the grouping of addends or factors does not affect the sum or product - (3 + 6) + 9 = 3 + (6 + 9) ; (2 x 4) x 7 = 2 x (4 x 7)
Average	- The sum of a set of numbers divided by the number of addends ▪ The average of 1, 2, 7, 3, 8, and 9 = $\frac{1+2+7+3+8+9}{6} = 5$
Axes	- Two perpendicular number lines with a common origin 
Axis	- A number line which may be vertical or horizontal
Base	- 1. A side of a geometric figure - 2. A standard grouping of a numeration system ▪ If a numeration system groups objects by fives, it is called a base 5 system (23 is a base 5 numeral meaning two fives and three ones).
Bisect	- To divide into two congruent parts  $\overline{DC}$ bisects $\overline{AB}$  $\overline{XY}$ bisects angle ABC
Bisector	- A line or ray that divides a segment or angle into two congruent parts
Capacity	- The measure of the amount that a container will hold
Chance	- The probability or likelihood of an occurrence

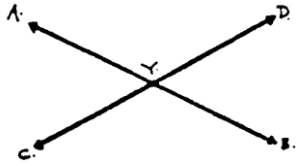
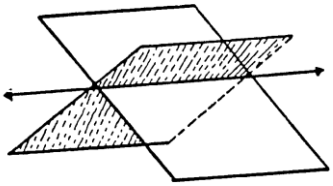
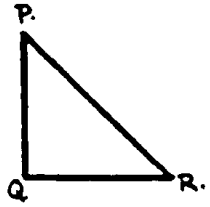
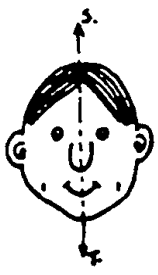
Chord	- A line segment having endpoints on a circle  ▪ $\overline{XY}$ is a chord.
Circle	- A closed curve in which all points on the edge are equidistant from a given point in the same plane 
Circumference	- The distance around the circle circumference = π x diameter 
Closed figure	- A set of points that encloses a region in the same plane; a curve that begins and ends at the same point  
Coefficient	- In the expression 8x, 8 is the coefficient of x
Coincide	- Two lines coincide when they intersect at more than one point
Collinear	- When points are on the same line, they are collinear
Common Denominator	- A whole number that is the denominator for both members of a pair of fractions For $\frac{3}{7}$ and $\frac{5}{7}$, 7 is a common denominator.
Common Factor	- A whole number which is a factor of two or more numbers (3 is a factor common to 6, 9, and 12)
Common Multiple	- A whole number that is a multiple of two or more numbers (12 is a multiple common to 2, 3, 4, and 6)
Commutative Property for Addition and Multiplication	- The rule stating that the order of addends or factors has no effect on the sum or product - 3 + 9 = 9 + 3 and 4 x 7 = 7 x 4
Compass	- A tool for drawing circles
Composite Number	- A number having at least one whole number factor other than 1 and itself

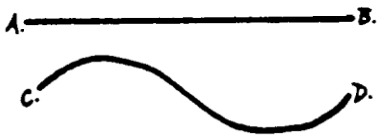
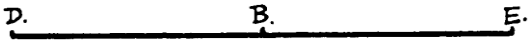
Cone	- A space figure with a circular base and a vertex 
Congruent	- Of equal size and shape; the symbol $\cong$ means congruent  ▪ Triangles ABC and DEF are congruent.
Coordinate Plane	- A grid on a plane with two perpendicular lines of axes
Coordinates	- A pair of numbers which give the location of a point on a plane
Cross Product Method	- Means of testing for equivalent fractions If $\frac{3}{5} = \frac{6}{10}$, then 3 x 10 will equal 5 x 6.
Cube	- A space figure having six congruent, square faces 
Curve	- A set of points connected by a line segment 
Customary Units	- Units of the measurement system commonly used in a given country (inches, feet, pounds, ounces, and miles are customary units in the U.S.)
Cylinder	- A space figure having two congruent, circular bases 
Data	- Figures, facts or information
Decagon	- A ten-sided polygon 
Decimal Numeral	- A name for a fractional number expressed with a decimal point, such as .27 (4.03 is a mixed decimal)
Decimal System	- A numeration system based on grouping by tens

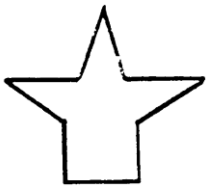
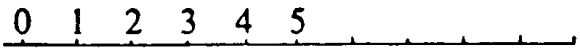
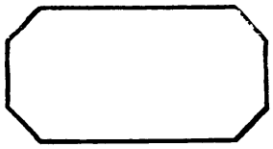
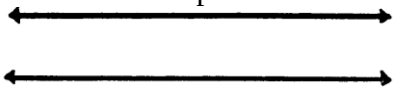
Degree	- 1. A unit of measure used in measuring angles (a circle contains 360 degrees) - 2. A unit for measuring temperature
Denominator	- The bottom number in a fraction; the denominator tells how many parts there are in a whole unit
Diagonal	- A line segment joining two nonadjacent vertices in a polygon  ▪ $\overline{AC}$ is a diagonal in this figure.
Diameter	- A line segment which has its endpoints on a circle and which passes through the center of the circle  ▪ $\overline{LM}$ is the diameter of this circle.
Difference	- 1. The distance between two numbers on the number line - 2. The result of subtracting the lesser from the greater
Digit	- A symbol used to write numerals; in the decimal system, there are ten digits (0-9)
Distributive Property for Multiplication Over Addition	- The rule stating that when the sum of two or more addends is multiplied by another number, each addend must be multiplied separately and then the products must be added together ▪ $3 \times (4 + 6 + 9) = (3 \times 4) + (3 \times 6) + (3 \times 9)$
Dividend	- A number which is to be divided in a division problem In the equation $7\overline{)63}$, 63 is the dividend.
Divisibility	- A number is divisible by a given number if the quotient of the two numbers is a whole number ▪ 189 is divisible by 9 because $189 \div 9$ is a whole number.
Division	- The operation of finding a missing factor when the product and one factor are known
Divisor	- The factor used in a division problem for the purpose of finding the missing factor $12\overline{)\,24}^{\,2}$ The divisor is 12.
Endpoint	- A point at the end of a line segment or ray  ▪ G is the endpoint of this ray
Equation	- A mathematical sentence which states that two expressions are equal ▪ $7 \times 9 = 3 + (4 \times 15)$
Equator	- An imaginary line at 0 degrees latitude on the earth's grid

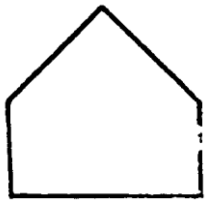
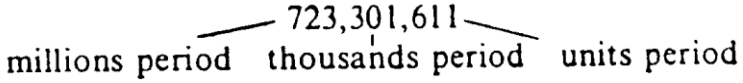
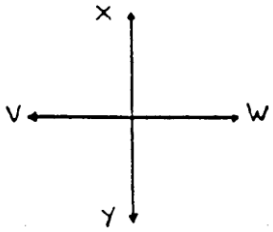
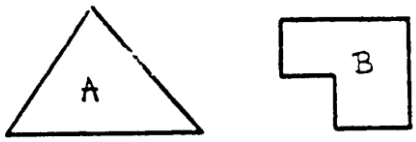
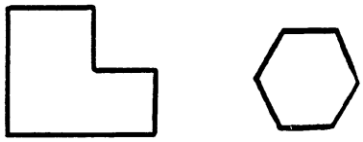
Equilateral	- Having sides of the same length  ▪ Figure ABC is an equilateral triangle. All of its sides are the same length.
Equivalent Fractions	- Fractions that name the same fractional number $\frac{3}{4}$ and $\frac{9}{12}$ are equivalent.
Estimate	- An approximation or rough calculation
Even Number	- One of the set of whole numbers having the number 2 as a factor
Expanded Notation	- The method of writing a numeral to show the value of each digit ▪ 5327 = 5000 + 300 + 20 + 7
Exponent	- A numeral telling how many times a number is to be used as a factor ▪ In 6^3, the exponent is 3 $6^3 = 6 \times 6 \times 6 = 216$
Face	- A plane region serving as a side of a space figure
Factor	- One of two or more numbers that can be multiplied to find a product ▪ In the equation 6 x 9 = 54, 6 and 9 are factors
Factor Tree	- A pictorial means of showing the factors of a number 
Flip	- To "turn over" a geometric figure; the size or shape of the figure does not change 
Fraction	- The name for a fractional number written in the form $\frac{a}{b}$; a is the numerator, b is the denominator
Fractional Number	- A number that can be named as a fraction, $\frac{a}{b}$; the numerator and denominator can be any numbers with the exception that the denominator cannot be 0.
Geometry	- The study of space and figures in space
Gram	- A standard unit for measuring weight in the metric system
Graph	- A drawing showing relationships between sets of numbers
Greatest Common Factor	- The largest number that is a factor of two other numbers (6 is the greatest common factor of 18 and 24)

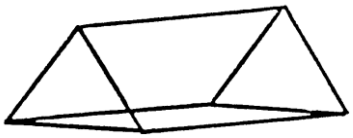
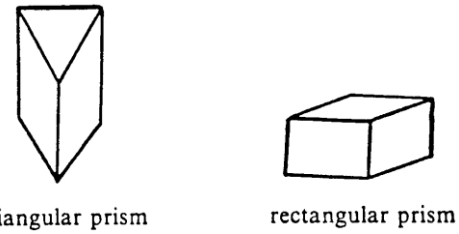
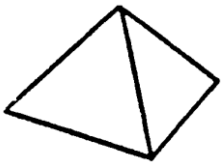
Grid	- A set of horizontal and vertical lines spaced uniformly 
Hemisphere	- Half of a sphere 
Heptagon	- A seven-sided polygon 
Hexagon	- A six-sided polygon 
Horizontal	- A line that runs parallel to a base line  ▪ Line $\overline{GH}$ is a horizontal line.
Hypotenuse	- The longest side of a right triangle located opposite the right angle  ▪ Side $\overline{OP}$ is the hypotenuse of this triangle
Identity Element For Addition	- 0 is the identity element for addition because any number plus 0 equals that number
Identity Element For Multiplication	- The number 1 is the identity element for multiplication because any number multiplied by 1 equals that number. ▪ (17 x 1 = 17)
Improper Fraction	- A fraction having a numerator equal to or greater than the denominator, therefore naming a number of 1 or more $\frac{9}{4}$ is an improper fraction.
Inequality	- A number sentence showing that two groups of numbers stand for different numbers The signs $\neq$, $<$, and $>$ show inequality. $7 + 5 \neq 12 - 9$
Infinite Set	- A set having an unlimited number of members

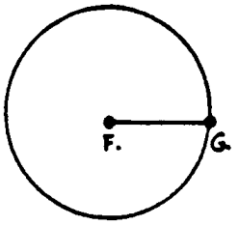
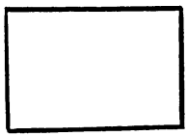
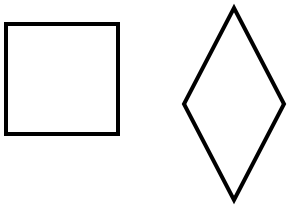
Integer	- Any member of the set of positive or negative counting numbers and 0 ▪ (… -4, -3, -2, -1, 0, 1, 2, 3, 4, …)
Intersection of Lines	- The point at which two lines meet  ▪ Lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point Y.
Intersection of Planes	- A line formed by the set of points at which two planes meet 
Inverse	- Opposite; addition and subtraction are inverse operations and multiplication is the inverse of division
Latitude	- The distance, measured in degrees, north or south of the equator; lines of latitude run parallel to the equator
Least Common Denominator	- The smallest whole number which is a multiple of the denominators of two or more fractions The least common denominator for $\frac{1}{3}$ and $\frac{3}{4}$ is 12.
Least Common Multiple	- The smallest whole number which is divisible by each of two or more given numbers ▪ The least common multiple of 2, 6, 9, and 18 is 18
Legs	- Sides adjacent to the right angle is a right triangle  ▪ $\overline{QP}$ and $\overline{QR}$ are legs in this triangle.
Like Fractions	- Fractions having the same denominator $\frac{2}{9}$ and $\frac{12}{9}$ are like fractions.
Line	- One of the four undefined terms of geometry used to define all other terms
Line of Symmetry	- A line on which a figure can be folded so that the two parts are exactly the same  ▪ Line $\overleftrightarrow{ST}$ is the line of symmetry in this figure

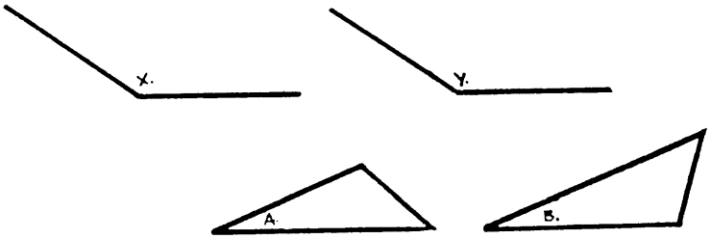
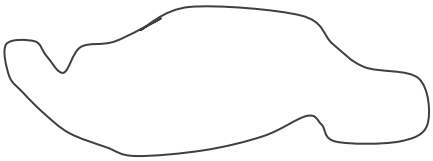
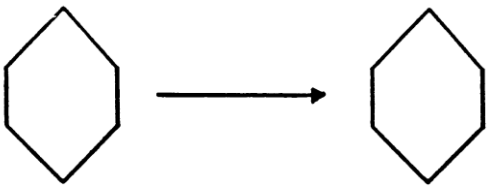
Line Segment	- Part of a line consisting of a path between two endpoints  ▪ $\overline{AB}$ and $\overline{CD}$ are line segments.
Linear Measure (or length)	- The measure of distance between two points along a line
Liter	- Metric system unit of measurement for liquid capacity
Longitude	- The distance, measured in degrees, east or west of the prime meridian; lines of longitude run north and south on the earth's grid, meeting at the poles
Lowest Terms	- When a fraction has a numerator and denominator with no common factor greater than 1, the fraction is in lowest terms ▪ $\frac{3}{7}$ is a fraction in lowest terms
Mean	- Average; the sum of numbers in a set divided by the number of addends ▪ The mean of 6, 8, 9, 19, and 38 is $\frac{80}{5}$ or 16.
Measurement	- The process of finding the length, area, capacity, or amount of something
Median	- The middle number in a set of numbers; the median is determined by arranging numbers in order from lowest to highest and by counting to the middle ▪ The median of (3, 8, 12, 17, 20, 23, 27) is 17
Meter	- A metric system unit of linear measurement
Metric System	- A system of measurement based on the decimal system
Midpoint	- A point that divides a line segment into two congruent segments  ▪ Point B is the midpoint of DE.
Mixed Numeral	- A numeral that includes a whole number and a fractional number or a whole number and a decimal ▪ $7\frac{1}{2}$ and 37.016 are mixed numerals.
Multiple	- The product of two whole numbers
Multiplication	- An operation involving repeated addition ▪ 4 x 5 = 4 + 4 + 4 + 4 + 4
Multiplicative Inverse	- For any given number, the number that will yield a product of 1 ▪ $\frac{4}{3}$ is the multiplicative inverse of $\frac{3}{4}$ because $\frac{4}{3}$ x $\frac{3}{4}$ = 1.
Negative Integer	- One of a set of counting numbers that is less than 0

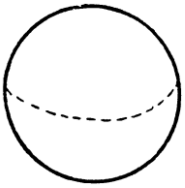
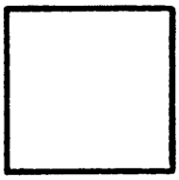
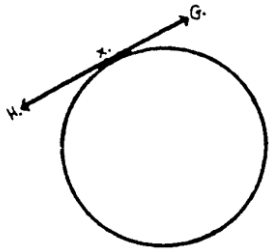
Nonagon	- A nine-sided polygon 
Number	- A mathematical idea concerning the amount contained in a set
Number Line	- A line which has numbers corresponding to points along it 
Numeral	- A symbol used to represent or name a number
Numeration System	- A system of symbols used to express numbers
Numerator	- The number above the line in a fraction
Octagon	- An eight-sided polygon 
Odd Number	- A whole number belonging to the set of numbers equal to (n x 2) + 1 ▪ (1, 3, 5, 7, 9 …) are odd numbers.
Odd Against	- The ratio of the number of unfavorable outcomes to the number of favorable outcomes
Odds in Favor	- The ratio of the number of favorable outcomes to the number of unfavorable outcomes
Opposite Property	- A property which states that if the sum of two numbers is 0, then each number is the opposite of the other ▪ -4 + 4 = 0; -4 and 4 are opposites
Ordered Pair	- A pair of numbers in a certain order with the order being of significance
Ordinal Number	- A number telling the place of an item in an ordered set (sixth, eighth, etc.)
Origin	- The beginning point on a number line; the origin is often 0
Outcome	- A possible result in a probability experiment
Palindrome	- A number which reads the same forward and backward ▪ (343, 87678, 91219, etc.)
Parallel Lines	- Lines in the same plane which do not intersect ▪ These lines are parallel 

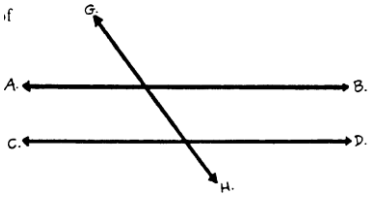
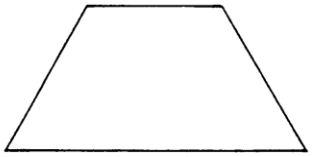
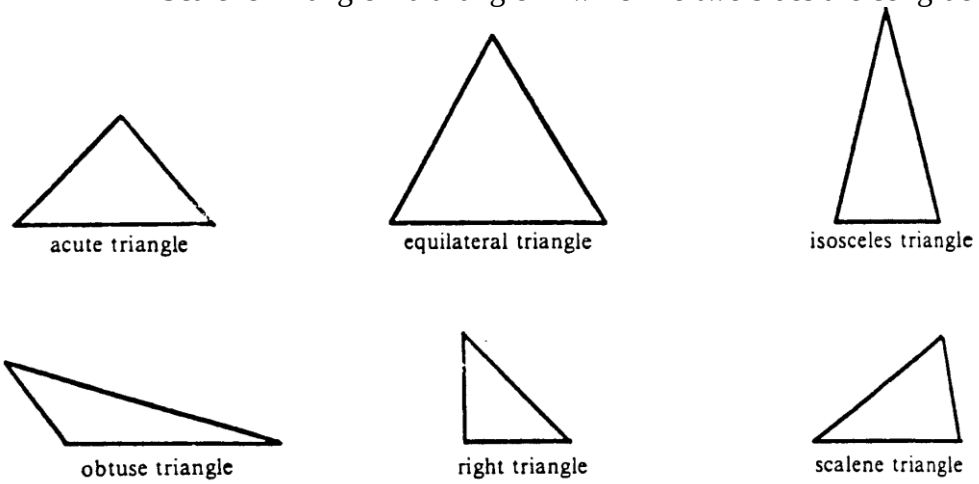
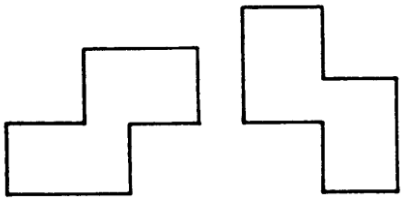
Parallelogram	- A quadrilateral whose opposite sides are parallel
Pentagon	- A five-sided polygon 
Percent	- A comparison of a number with 100 ▪ 43 compared to 100 is 43%
Perimeter	- The distance around the outside of a closed figure
Periods	- Groups of three digits in numbers 
Perpendicular Lines	- Two lines in the same plane that intersect at right angles ▪ These lines are perpendicular to one another 
Pi	- The ratio of a circle's circumference to its diameter ▪ Pi = 3.14159265 (a non-termination decimal) ▪ The symbol π signifies pi.
Pictograph	- A graph that uses pictures or symbols to represent numbers
Place Value	- The value assigned to a digit due to its position in a numeral
Plane	- The set of all points on a flat surface which extends indefinitely in all directions
Plane Figure	- A set of points in the same plane enclosing a region ▪ Figures A and B are plane figures. 
Point	- One of the four undefined terms in geometry used to define all other terms
Polygon	- A simple, closed plane figure having line segments as sides 

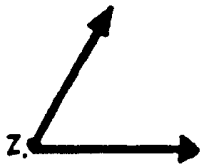
Polyhedron	- A space figure formed by intersecting plane surfaces called faces 
Positive Integer	- One of a set of counting numbers that is greater than 0
Prime Factor	- A factor that is a prime number ▪ 1, 2, and 5 are prime factors of 20
Prime Number	- A number whose only number factors are 1 and itself
Prism	- A space figure with two parallel, congruent polygonal faces (called bases); a prism is named by the shape of its bases  triangular prism rectangular prism
Probability	- A study of the likelihood that an event will occur
Product	- The answer in a multiplication problem
Property of One	- A property which states that any number multiplied by 1 will equal that number
Property of Zero	- A property which states that any number plus zero equals that number
Proportion	- A number statement of equality between two ratios - $\frac{3}{7} = \frac{9}{21}$
Protractor	- An instrument used for measuring angles
Pyramid	- A space figure having one polygonal base and four triangular faces which have a common vertex 
Quadrilateral	- A four-sided polygon 
Quotient	- The answer in a division problem

Radius	- A line segment having one endpoint in the center of the circle and another on the circle ▪ $\overline{FG}$ is the radius of this circle. 
Rate	- A comparison of two quantities
Ratio	- A comparison of two numbers expressed as $\frac{a}{b}$
Ray	- A portion of a line extending from one endpoint in one direction indefinitely
Reciprocal Method For Dividing Fractions	- A means of dividing fractions that involves replacing the divisor with its reciprocal and then multiplying ▪ $\frac{2}{3} \div \frac{4}{7} = \frac{2}{3} \times \frac{7}{4} = \frac{14}{12} = 1\frac{1}{6}$
Reciprocals	- A pair of numbers whose product is one ▪ $\frac{1}{2}$ and $\frac{2}{1}$ are reciprocals.
Rectangle	- A parallelogram having four right angles 
Region	- The set of all points on a closed curve and in its interior
Remainder	- The number (less than the divisor) that is left after a division problem is completed $\begin{array}{r} 20 \\ 21\overline{)426} \\ \underline{420} \\ 6 \end{array}$ 6 = remainder
Rename	- To name numbers with a different set of numerals
Repeating Decimal	- A decimal in which a certain set of digits repeats without end (0.363636)
Rhombus	- A parallelogram having congruent sides 

Roman Numerals	- Numerals used by the Romans for keeping records
Rounding	- Disregarding all digits in a number beyond a certain significance
Scale Drawing	- A drawing of an object with all distances in proportion to the corresponding distances on the actual object
Scientific Notation	- A number expressed as a decimal number (usually with an absolute value less than 10) multiplied by a power of 10 ▪ $4.53 \times 10^3 = 4530$
Segment	- Two points and all of the points on the line or arc between them
Sequence	- A continuous series of numbers ordered according to a pattern
Similarity	- A property of geometric figures having angles of the same size ▪ Angles X and Y are similar ▪ Triangles A and B are similar 
Simple Closed Curve or Figure	- A closed curve whose path does not intersect itself 
Skip Count	- Counting by skipping a certain number of digits (counting by 2s, 5s, and 10s, etc.)
Slide	- Moving a figure without turning or flipping it; the shape or size of a figure is not changed by a slide 
Solution	- The number that replaces a variable to complete an equation
Space Figure	- A figure which consists of a set of points in two or more planes

Sphere	- A space figure formed by a set of points equidistant from a center point 
Square	- A rectangle with congruent sides 
Statistics	- Numerical observations or data
Subtraction	- The operation of finding a missing addend when one addend and the sum are known
Sum	- The answer in an addition problem resulting from the combination of two addends
Surface	- A region lying on one plane
Surface Area	- The space covered by a plane region or by the faces of a space figure
Symmetric Figure	- A figure having two halves that are reflections of one another; a line of symmetry divides the figure into two congruent parts ▪ These figures are symmetric. 
Tangent	- A line which touches a curve at only one point ▪ Line $\overleftrightarrow{GH}$ is tangent to the circle at point X. 
Terms of a Fraction	- The numerator and denominator of a fraction

Transversal	- A line that intersects two or more parallel lines ▪ $\overleftrightarrow{GH}$ is a transversal of lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$. 
Trapezoid	- A quadrilateral having only two parallel sides 
Triangle	- A three-sided polygon ▪ Acute Triangle – a triangle in which all three angles are less than 90º ▪ Equilateral Triangle – a triangle with three congruent sides and three congruent angles ▪ Isosceles Triangle – a triangle with at least two congruent sides ▪ Obtuse Triangle – a triangle having one angle greater than 90º ▪ Right triangle – a triangle having one 90º angle ▪ Scalene Triangle – a triangle in which no two sides are congruent 
Turn	- A move in geometry which involves turning, but not flipping, a figure; the size or shape of a figure is not changed by a turn 
Unit	- 1. The first whole number - 2. A determined quantity used as a standard for measurement

Vertex	- A common endpoint of two rays forming an angle, two line segments forming sides of a polygon, or two planes forming a polyhedron ▪ Point Z is the vertex of this angle 
Vertical	- A line that is perpendicular to a horizontal base line ▪ Line KL is vertical. 
Volume	- The measure of capacity or space enclosed by a space figure
Whole Number	- A member of the set of numbers (0, 1, 2, 3, 4 …)
X-Axis	- The horizontal number line on a coordinate grid
Y-Axis	- The vertical number line on a coordinate grid
Zero	- The number of members in an empty set