Power Words

Power Words

Acute Angle – an angle that measures between 0º and 90º.

36°   23°   84°   45°
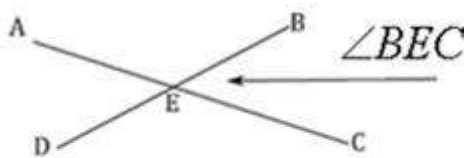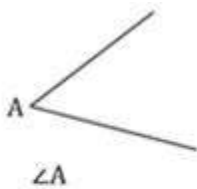
Acute Triangle – a triangle made up of 3 acute angles.
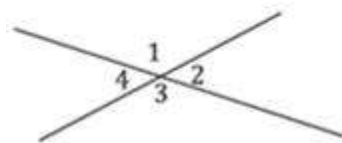
Altitude - A line segment extending from any vertex of a triangle perpendicular to the line containing the opposite side
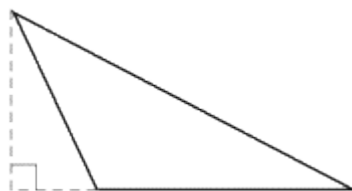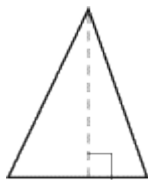
Angle $(\angle)$– the shape formed by two rays (called the sides of the angle) with the same endpoint (called the vertex).

∠A

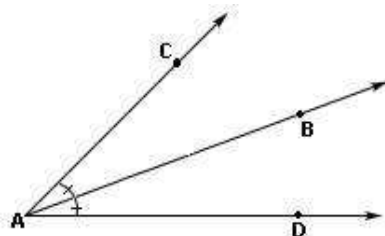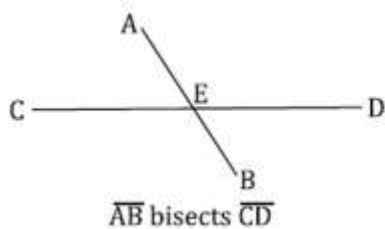$\angle BEC$ Notice the vertex is in the middle of the name.

∠1
∠2
∠3   An angle can also be named using a number.
∠4

Angle Bisector– A ray whose endpoint is the vertex of the angle and which divides the angle into two congruent angles
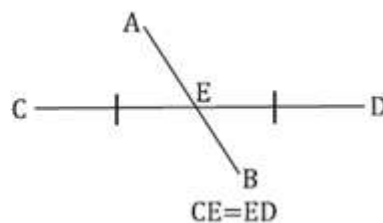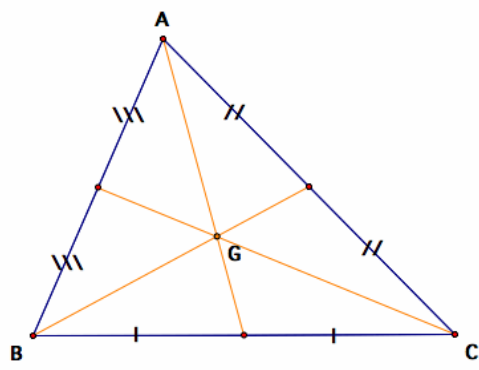
$$\angle CAB \cong \angle DAB$$

Bisect – to cut something exactly in half, or into two equal pieces

$\overline{AB}$ bisects $\overline{CD}$

This means....

$CE=ED$

Centroid – the point where the three medians of the triangle meet. It is also called the center of gravity of the triangle. $\left(\dfrac{x_1 + x_2 + x_3}{3} , \dfrac{y_1 + y_2 + y_3}{3} \right)$

Circle – the locus of all points that are a fixed distance from a given point.
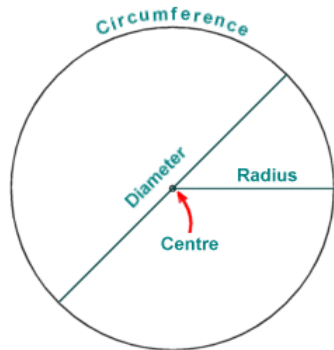
Circumcenter – the point of concurrency of the three perpendicular bisectors of each side of the triangle. It is always on the inside of the triangle. It is equidistant from each vertex of the triangle.

It is used to circumscribe a circle about a triangle.

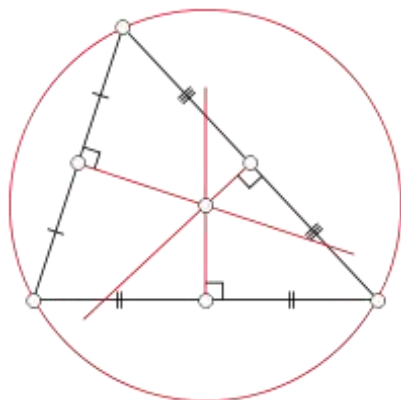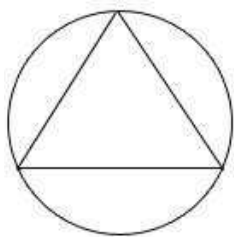**Circumscribed** - a geometric figure that is drawn around another geometric figure so as to touch all its vertices
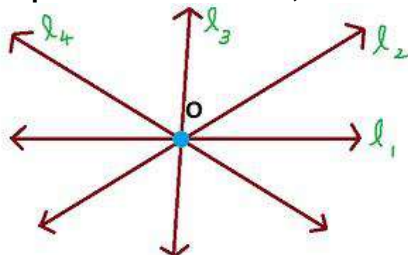
Circle is circumscribed around a triangle.

Collinear - three or more points that lie on the same straight line

P   Q   R

Concurrent - when three or more lines meet at a single point. In a triangle, the three medians, three perpendicular bisectors, three angle bisectors, and three altitudes are each concurrent.

ℓ_4 ℓ_3 ℓ_2 O ℓ_1

Congruence $\left(\cong\right)$ – the same shape and the same size

3cm
3cm

61°   61°
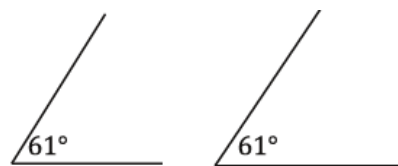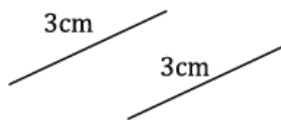
(Yes... these are the same size and shape. Remember the segments aren't the angles.)

If you want to say two segments are congruent. Do it like this...

$\overline{AB} \cong \overline{CD}$ The symbol "≅" means "congruent" or "is congruent to..." So this reads "segment AB is congruent to segment CD."

If you want to say two angles are congruent. Do it like this...

$\angle A \cong \angle C$ Again, the symbol "≅" means "congruent" or "is congruent to..." So this reads, "angle B is congruent to angle C."

Here is how you know two segments are the same length and congruent in a diagram...

A   B
E
D   C
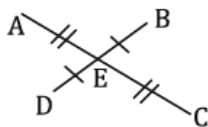
Every segment that has a "╲" on it is congruent to every other segment that has a "╲" (called a slash or a hash mark). So, $\overline{BE} \cong \overline{DE}$ (BE=DE too). Every segment that has two of them is congruent to every other with two. So, $\overline{AE} \cong \overline{CE}$ (AE=CE too), but $\overline{BE}$ is not ≅ to $\overline{AE}$ and so on....

Here is how you know two angles are the same measure and congruent in a diagram.
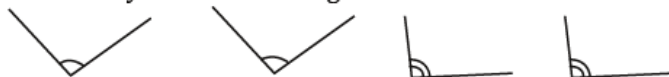
Any angle with one arc is congruent to all the others with one arc. Any angle with two arcs is congruent to any angle with two arcs.

Let's practice.

Degree –a quantity or measure of an angle greater than 0° and less than 180°.

Distance – the measure of a segment. To every pair of points A and B there corresponds a real number dist(A,B)≥0, called the distance from A to B. This is the same as the length of segment $\overline{AB}$ or AB.

6

A   B   dist(A,B)=6   dist(B,A)=6   length of $\overline{AB}$ =6   AB=6
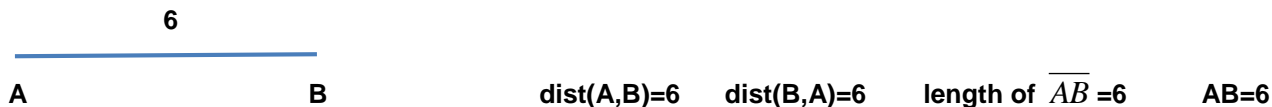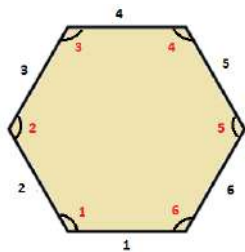
Equidistant – the same distance from an object

Equilateral Triangle – a triangle with three sides of the same length. Note: All angles in an equilateral triangle measure 60°.
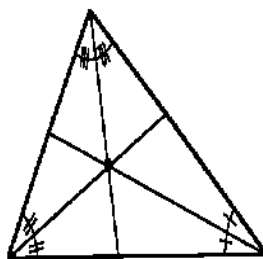

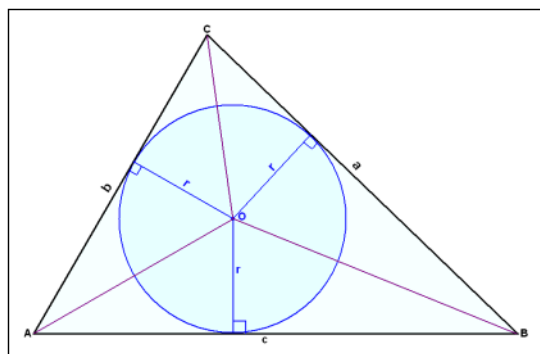**Hexagon** – a polygon with six sides (If all 6 sides have the same length, it is a regular hexagon.)

Incenter – the point where three angle bisectors meet The incenter is equidistant from all three sides of a triangl). It is always on the inside of a triangle.

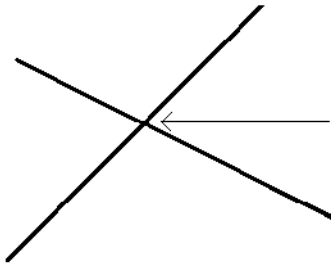It is used to inscribe a circle in a triangle.

Inscribe- drawing one shape inside another with it touching each side
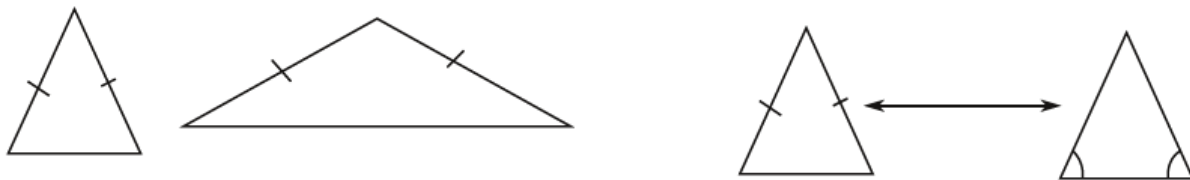

Point O is the incenter, the intersection of angle bisectors.

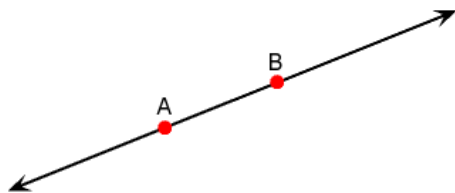**Intersecting Lines** – two or more lines that meet or cross.

Isosceles Triangle – a triangle with two sides of the same length. Note: there is a theorem that states the base angles are also equal.
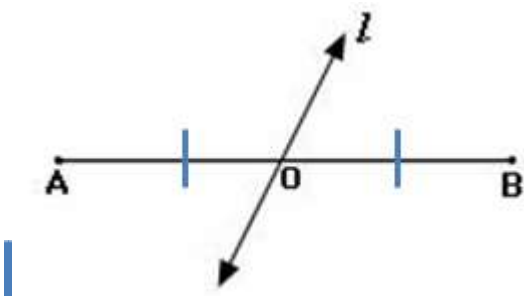
**Length of a Segment** – the distance between two points. See distance.

Line – a line is straight (no curves), has no thickness, and extends in both directions without end indefinitely.

B

A

Line Segment Bisector – Any line that intersects the segment at its midpoint and divides the segment into two congruent segments
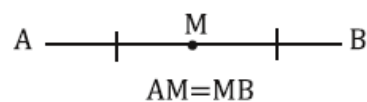
A   O   B

Median (of a triangle) - A line segment extending from any vertex of a triangle to the midpoint of the opposite side

A

B   D   C
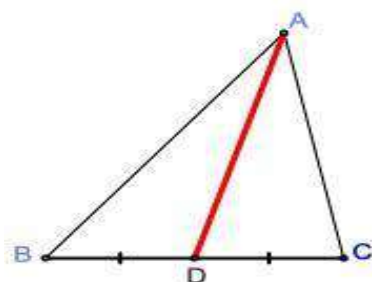
Midpoint – a point that is directly in the middle and bisects a segment (into two equal pieces)
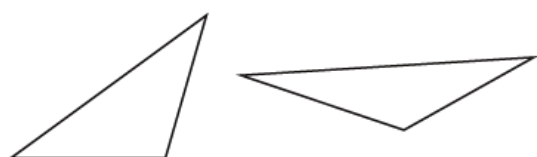
A ————————•M———————— B   That means…   A ——|——•M——|—— B

M is the midpoint of $\overline{AB}$.   AM=MB
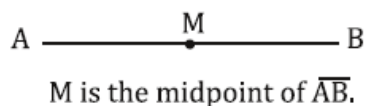
Obtuse Angle – an angle that measures between 90° and 180°.

120°   98°   145°   173°

**Obtuse Triangle** – a triangle that has one obtuse angle.

Orthocenter – the point where three altitudes meet. It is located on the interior of an acute triangle, on the exterior of an obtuse triangle, and on the midpoint of the hypotenuse of a right triangle.

altitude   altitude   B

orthocenter

A   altitude   C
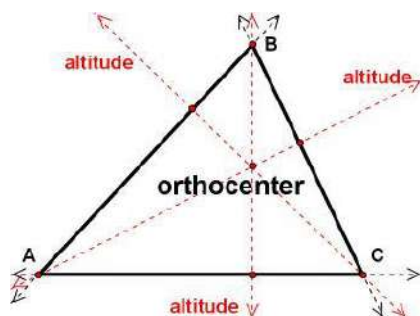
Perpendicular Bisector - a line which cuts a line segment into two equal parts at 90°

•C

A   D   B
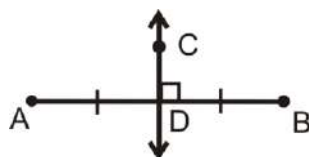
Radius – the distance from the center to the edge of a circle. It is half of the circle's diameter.
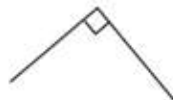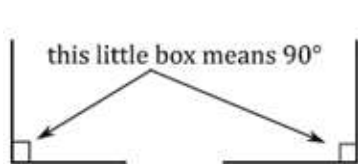
Circumference

Radius

Center
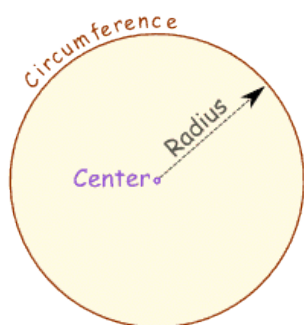
Ray – a part of a line. It has one endpoint and extends indefinitely in the other direction.

B

A
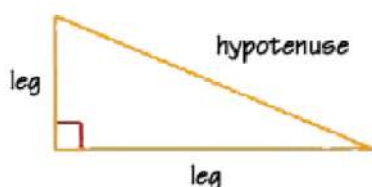
$\overrightarrow{AB}$ Notice it has an arrow going in one direction only.

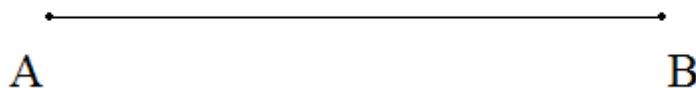**Right Angle** – an angle that measures exactly 90°. It is indicated by a little square box.

this little box means 90°

Right Triangle– a triangle that has one right angle.

leg

hypotenuse

leg

Scalene Triangle– a triangle with all sides a different length.

Segment–part of a line connecting two points. It has definite end points.

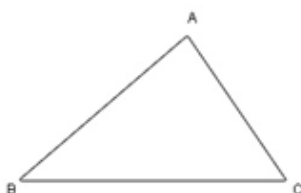A   B
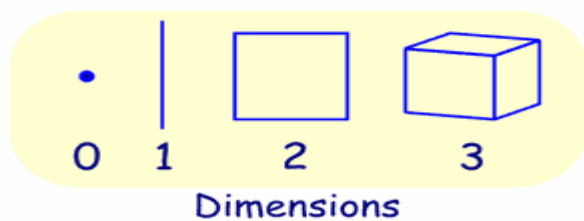
Straight Angle – an angle that measures exactly 180° (a line).

180°

Triangle – a polygon with three sides

△ABC

A

B   C

Two Dimensional Figure -A shape that only has two dimensions (such as width and height) and no thickness.

O   1   2   3
Dimensions

Vertex – the point where two segments or rays meet to form an angle. (plural is vertices)

Vertex

Zero Angle – a measure of an angle with zero degrees (formed by a ray)

O   A