Geometry Theorems/Identities/Properties/Postulates and Corollaries

Segment Addition Postulate—If B is between A and C, then AB + BC = AC.

Angle Addition Postulate—If point B lies in the interior of ∠AOC, then m∠AOB + m∠BOC = m∠AOC. If ∠AOC is a straight angle and B is any point not on $\overleftrightarrow{AC}$, then m∠AOB + m∠BOC = 180°.

SSS Postulate—If all corresponding sides of two Δ's are ≅ then the Δ's are ≅.

SAS Postulate—If a corresponding side angle and side of two Δ's are ≅, then the Δ's are ≅.

ASA Postulate— If a corresponding angle, side and angle of two Δ's are ≅, then the Δ's are ≅.

AAS Theorem— If a corresponding angle, angle and side of two Δ's are ≅, then the Δ's are ≅.

HL Theorem— If a corresponding leg and hypotenuse of two Δ's are ≅, then the Δ's are ≅.

Midpoint Theorem—If M is the midpoint of $\overline{AB}$, then AM = ½AB and MB = ½AB.

Angle Bisector Theorem—If $\overrightarrow{BX}$ is the bisector of ∠ABC, then m∠ABX = ½ m∠ABC and m∠XBC = ½ m∠ABC.

Vertical Angles — ≅.

Parallel Lines—alt. ext., alt. int., corresponding ∠'s are ≅.

—same side int. & linear pr. are supplementary.

Isosceles Δ Theorem—If two sides of a Δ are ≅, then opposite angles are ≅.

—The bisector of the vertex angle of an isosceles Δ is ⊥ to the base at its midpoint.

Δ Sum Theorem—The ∠'s of a Δ add up to 180°.

Parallelogram—opp. sides ≅ & //; diagonals bisect each other.

Rhombus—diagonals are ⊥ bisectors.

Median of a Δ — is ½ the base.

Median of a Trapezoid—Is the average of the bases.

Midpoint of Hyp. of Rt. Δ— is equidistant from the three vertices.

Ext. ∠ Inequality Theorem—Ext. ∠ is greater than either remote int. ∠.

Opp. ∠ Theorem of a Δ—Greatest side is opp. greatest ∠.

Δ Inequality—The sum of two sides must be > than the third side.

Δ Classification—**Rt. Δ** if; $c^2 = a^2 + b^2$ —**Obtuse Δ** if; $c^2 > a^2 + b^2$ —**Acute Δ** if; $c^2 < a^2 + b^2$