**Geometry Conjectures List**

**POLYGONS**

Quadrilateral Sum Conjecture – The sum of all the measures of the interior angles in a quadrilateral is 360°.

Polygon Sum Conjecture – The sum of the measures of the *n* interior angles in an *n*-gon is (n-2)\*180°.

Exterior Angle Sum Conjecture – The sum of the measures of one set of exterior angles in any polygon is 360°.

Equiangular Polygon Conjecture – The measure of one interior angle in an equiangular n-gon is given by $\frac{180°\*(n-2)}{n}$.

**Kites**

Kite Angles Conjecture – The nonvertex angles of a kite are congruent.

Kite Diagonals Conjecture – The diagonals of a kite are perpendicular.

Kite Diagonal Bisector Conjecture – The diagonal connecting the vertex angles of a kite is the perpendicular bisector of the other diagonal.

Kite Angle Bisector Conjecture – The vertex angles of a kite are bisected by a diagonal.

**Trapezoids**

Trapezoid Consecutive Angles Conjecture – The consecutive angles between the bases of a trapezoid are supplementary.

Isosceles Trapezoid Conjecture – The base angles of an isosceles trapezoid are congruent.

Isosceles Trapezoid Diagonals Conjecture – The diagonals of an isosceles trapezoid are congruent.

**Parallelograms**

Parallelogram Opposite Angles Conjecture – The opposite angles of a parallelogram are congruent.

Parallelogram Consecutive Angles Conjecture – The consecutive angles of a parallelogram are supplementary.

Parallelogram Opposite Sides Conjecture – The opposite sides of a parallelogram are congruent.

Parallelogram Diagonals Conjecture – The diagonals of a parallelogram bisect each other.

**Special Parallelograms**

Rhombus Diagonal Conjecture – The diagonals of a rhombus are perpendicular and they bisect each other.

Rhombus Angles Conjecture – The diagonals of a rhombus bisect the angles of the rhombus.

Rectangle Diagonal Conjecture – The diagonals of a rectangle are congruent and they bisect each other.

Square Diagonal Conjecture – The diagonals of a square are congruent, perpendicular, and they bisect each other.

**TRIANGLES**

CPCTC – Corresponding Parts of Congruent Triangles are Congruent. If two triangles are congruent, then all their corresponding sides and corresponding angles are congruent.

SSS Congruence Conjecture – If the three sides of one triangle are congruent to the three sides of another triangle, then the triangles are congruent.

SAS Congruence Conjecture – If two sides and the included angle of one triangle are congruent to two sides and the included angle of another triangle, then the triangles are congruent.

ASA Congruence Conjecture – If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent.

SAA Congruence Conjecture – If two angles and a non-included side of one triangle are congruent to the corresponding two angles and non-included side of another triangle, then the triangles are congruent.

Triangle Sum Conjecture – The sum of all the interior angle measures in a triangle is 180°

Isosceles Triangle Conjecture – If a triangle is an isosceles triangle, then the base angles are congruent.

Converse of the Isosceles Triangle Conjecture – If a triangle has two congruent angles, then it is an isosceles triangle.

Triangle Inequalities Conjecture – The sum of any two side lengths in a triangle must always be greater than the remaining side length.

Exterior Angle Conjecture – The sum of the measures of the remote interior angles in a triangle is equal to the measure of the exterior angle.

Side-Angle Inequality Conjecture – In a triangle, if one side is longer than another side, then the angle opposite the longer side will be greater than the angle opposite the shorter side.

**LINES AND ANGLES**

Perpendicular Bisector Conjecture – If a point is on the perpendicular bisector of a segment, then it is equal distance from the end points.

Converse of the Perpendicular Bisector Conjecture – If a point is equal distance from the endpoints of a segment, then it is on the perpendicular bisector of a segment.

Angle Bisector Conjecture – If a point is on the bisector of an angle, then it is equal distance from the sides of the angle.

Linear Pair Conjecture – If two angles form a linear pair, then the measures of the angles add up to 180°.

Vertical Angles Conjecture – If two angles are vertical angles, then they are congruent and have equal measures.

Corresponding Angles Conjecture – If two parallel lines are cut by a transversal, then corresponding angles are congruent.

Alternate Interior Angles Conjecture – If two parallel lines are cut by a transversal, then alternate interior angles are congruent.

Alternate Exterior Angles Conjecture – If two parallel lines are cut by a transversal. Then alternate exterior angles are congruent.

Parallel Lines Conjecture – If two parallel lines are cut by a transversal, then corresponding angles are congruent, alternate interior angles are congruent, and alternate exterior angles are congruent.

Converse of the Parallel Lines Conjecture – If two lines are cut by a transversal to form pairs of congruent corresponding angles, congruent alternate interior angles, or congruent alternate exterior angles, then the lines are parallel.