Conjectures

C-1: If a point is on the perpendicular bisector of a segment then it is <u>equally distant</u> from the endpoints. (Perpendicular Bisector Conjecture)

C-2: If a point is equally distant from the endpoints of a segment, then it is on the <u>perpendicular bisector</u> of the segment.

C-3: The shortest distance from a point to a line is measured along the <u>perpendicular</u> from the point to the line.

C-4: If a point is on the bisector of an angle then it is <u>equally distant</u> from the sides of the angle. (Angle Bisector Conjecture)

C-5: (missing)

C-6: The 3 angle bisectors of a triangle intersect at one point.

C-7: The 3 perpendicular bisectors of a triangle intersect at one point.

C-8: The 3 altitudes of a triangle intersect at one point.

C-9: (missing)

C-10: Orthocenter – point of concurrency of 3 altitudes.

C-11: The 3 medians of a triangle are concurrent.

C-12: The centroid of a triangle divides each median into two parts, so that the distance from the centroid to the vertex is <u>TWICE</u> the distance from the centroid to the midpoint (of a side).

C-13: The circumcenter, the centroid, and the orthocenter are 3 points that are collinear and lie on the "Euler Line".

C-14: The centroid divides the "Euler Line" into 2 parts so that the larger part is twice the smaller part.

C-15: If 2 angles are vertical angles then they are congruent.

C-16: If 2 angles are a linear pair then they are supplementary.

C-17: If 2 parallel lines are cut by a transversal, then corresponding angles are equal or congruent.

C-17(a): If 2 parallel lines are cut by a transversal, then corresponding angles are congruent, alternate interior angles are congruent, and alternate exterior angles are congruent.

C-17(b): If 2 parallel lines are cut by a transversal then AIA are congruent.

C-18: (missing)

C-19: $X_1 + X_2$, $Y_1 + Y_2$ (Midpoint Formula) C 20: Y_2 , Y_1 (Slope Formula)

C-20: $\frac{Y_2 - Y_1}{X_2 - X_1}$ (Slope Formula)

C-21: In a coordinate plane, two distinct lines are parallel if an only if their slopes are the same.

C-22: In a coordinate plane 2 non-vertical lines are perpendicular if and only if their slopes are opposite reciprocals.

C-22: Distance Formula: $Sqr((X_2 - X_1)^2 + (Y_2 - Y_1)^2)$

C-23: (missing)

C-24: (missing)

C-25: The sum of the measures of a triangle is 180°.

C-26: If 2 angles of one triangle are equal in measure, 2 angles of another triangle are equal.

C-27: If a triangle is isosceles, then the 2 base angles are congruent.

C-28: If a triangle has 2 congruent angles, then it has 2 equal sides and can be considered isosceles.

C-29: An equilateral triangle is equiangular and conversely an equiangular triangle is equilateral.

C-30: The sum of the lengths of any 2 sides of a triangle is greater than the length of the third side.

C-31: In a triangle the largest side is opposite the largest angle, and the smallest side is opposite the smallest angle.

C-32: The measure of the exterior angle of a triangle is equal to the sum of the remote interior angles.

C-33: SSS Congruence – If the 3 sides of 1 triangle are congruent to 3 sides of another triangle then the triangles are congruent.

C-34: SAS Congruence – If 2 sides and the angle between one triangle are congruent to 2 sides and the angle between them in the other triangle then the triangles are congruent.

C-?: SSA Congruence – If 2 sides and an angle not between the two sides in one triangle are congruent to 2 sides and angle of another triangle then the triangles are <u>NOT</u> necessarily congruent.

C-35: ASA Congruence - If 2 angles and the side between them are congruent to 2 angles and side in another triangle, then the triangles are congruent.

C-36: SAA Congruence - If 2 angles and a side are congruent to 2 angles and a side of another triangle, the 2 triangles are congruent.

C-?: AAA – Does not guarantee congruence.

C-?: Addition Property of Equality – If a = b, then a + c = b + c.

C-?: Subtraction Property of Equality – If a = b, then a - c = b - c.

C-37: Vertex Angle Bisector – In an isosceles triangle the bisector of the vertex angle is also the median to the base and altitude to the base.

C-38: Quadrilateral Sum Conjecture - The sum of the measures of the 4 angles of every quadrilateral is 360°.

C-39: The sum of the measure of the n <'s of an n-gon is 180x - 360.

C-40: The sum of the measures of one set of exterior angles is 360°.

C-41: (missing)

C-42: Kite Diagonals Conjecture - The diagonals of a kite are perpendicular.

C-43: Kite Diagonal Bisector Conjecture - The diagonal connecting the vertex angles of a kite is the bisector of the other diagonal.

C-44: Kite Angles Conjecture - The non-vertex angles of a kite are congruent.

C-45: Kite Angle Bisector Conjecture - The vertex angles of a kite are bisected by a diagonal.

C-46: Trapezoid Consecutive Angles Conjecture - The consecutive angles between the bases of a trapezoid are supplementary.

C-47: Isosceles Trapezoid Conjecture - The base angles of an Isosceles trapezoid are congruent.

C-48: Isosceles Trapezoid Diagonals Conjecture – The diagonals of an isosceles trapezoid are congruent.

C-49: The three mid-segments of a triangle divide the triangle into

C-50: (missing)

C-51: (missing)

C-52: The opposite angles of a parallelogram are congruent.

C-53: The consecutive angles of a parallelogram are supplementary.

C-54: The opposite sides of a parallelogram are congruent.

C-55: The diagonals of a parallelogram bisect each other.

C-56: (missing)

C-57: The diagonals of a rhombus bisect each other.

C-58: The diagonals of a rhombus bisect the angles of a rhombus.

C-59: The measure of each angle of a rectangle is 90°.

C-60: The diagonals of a rectangle are congruent.

C-61: If two chords in a circle are congruent, then they determine 2 central angles that are congruent.

C-62: If two chords in a circle are congruent then their intercepted arcs are congruent.

C-63: The perpendicular from the center of a circle to a chord is the perpendicular bisector of the chord.

C-64: Two congruent chords are equally distant from the center of the circle.

C-65: The perpendicular bisector of a chord passes through the center of the circle.

C-66: A tangent to a circle is perpendicular to the radius at point of tangency.

C-67: Tangent segments to a circle from a point outside the circle are congruent.

C-68: The measure of an inscribed angle in a circle is half the measure of the arc it intercepts.

C-69: Inscribed angles that intercept the same arc are: congruent.

C-70: Angles inscribed in a semicircle are right angles.

C-71: The opposite angles of a quadrilateral inscribed in a circle are supplementary.

C-72: Parallel lines intercept congruent arcs on a circle.

C-106: The angle bisector in a triangle divides the opposite side into 2 segments that are the same ratio of the side.

C-109: Parallel Proportionality Theorem - If a line is parallel to one side of a triangle passes through the other 2 sides then it divides them proportionate. Conversely, if a line cuts 2 sides of a triangle proportionately, then it is parallel to the third side.

C-110: Extended Parallel Proportionality Conjecture - If 2 or more lines pass through 2 sides of a triangle parallel to the 3rd side, then they divide the 2 sides proportionally.