C. if the diagonals of a quadrilateral are perpendicular bisectors of each other —> it is a Rhombus

Proving that a Quadrilateral is Square:

A. if a quadrilateral is both a rectangle and a rhombus —> it is a square

Proving that a Trapezoid is Isosceles:

A. if non parallel sides of a trapezoid are congruent—> it is isosceles
B. if the lower or upper base angles of a trapezoid are congruent—> it is isosceles
C. if the diagonals of a trapezoid are congruent —> it is isosceles

Triangles

- Thm: The sum of the measures of 3 angles in a triangle is 180
- exterior angle of a polygon is an angle that is adjacent to and supplementary to an interior angle of the polygon
- Thm: the measure of an exterior angle of a triangle is equal to the sum of the measures of the remote interior angles
- Midline Thm: a segment joining the midpoints of two sides of a triangle is parallel to the third side and its length is one half the length of the third side
- Thm: if two angles of one triangle are congruent to two angles of a second triangle then the third angles are congruent.
- AAS Thm: if there exist a correspondence between the vertices of two triangles such that two angles and a non included side of one are congruent to the corresponding parts of the other, then the triangles are congruent

Ratio & Proportion

- Ratio is a quotient of two numbers (5: 3)
- Slope is rise over run in a ratio
- Proportion is an equation stating that two or more ratios are equal (5:15= 15:45)
- In a Proportion containing 4 terms:
  - the 1 and the 4 are called- Extremes
  - the 2 and the 3 are called- Means
- Thm: in a proportion the product of the means is equal to the product of the extreme
- Thm: if the product of a pair of non zero numbers is equal to the product of another pair of non zero numbers then either pair of numbers may be the extremes and the other pair the means of a proportion
- In a Geometric mean the means in a proportion are equal. (1: 4 = 4:16 4 is a geometric mean between 1 and 16)
- Arithmetic means is the average

Similarity (≈)

- Similar polygons:
  - The ratios of the measures of corresponding sides are equal
  - Corresponding angles are congruent
- Thm: the ratio of the perimeters of two similar polygons equals the ratio of any pair of corresponding sides.
- Postulate: (AAA)if there exist a correspondence between the vertices of two triangles such that the three angles of one triangle are congruent to the three angles of the other triangle then the triangles are similar.