Ch. 8 Quadrilaterals

8.1 Angle Measures in Polygons

- **Polygon**: closed shape
  - Vertices: corners
  - Diagonals: segment that joins 2 noncensecutive vertices

Sum Interior Angles: $(n - 2) \cdot 180°$

Each angle in Regular: divide by n

Sum Exterior Angles: 360°

Each angle in Regular: divide by n

8.2 Parallelograms

- **Parallelogram**: A Quadrilateral with both pairs of opposite sides Parallel

- If it's a Parallelogram, then…
  - 1. Both pairs of opposite sides are congruent
  - 2. Both pairs of opposite angles are congruent
  - 3. Consecutive Interior Angles are supplementary
  - 4. Diagonals bisect each other

8.3 Show a Quadrilateral is a Parallelogram

- Ways to **Prove** a quadrilateral is a Parallelogram…
  - 1. **Show** both pairs of opposite sides are parallel
  - 2. **Show** both pairs of opposite sides are congruent
  - 3. **Show** both pairs of opposite angles are congruent
  - 4. **Show** one pair opposite sides are congruent and parallel
  - 5. **Show** Diagonals bisect each other

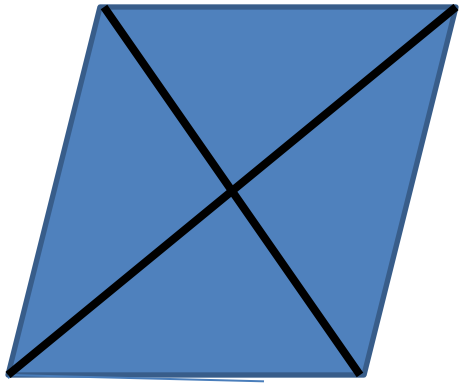
  - Remember to use distance formula, slope, midpoint

8.4 Rhombus, Rectangles, Squares

- **Three Special Parallelograms…**
  1. Rhombus
  2. Rectangle
  3. Square

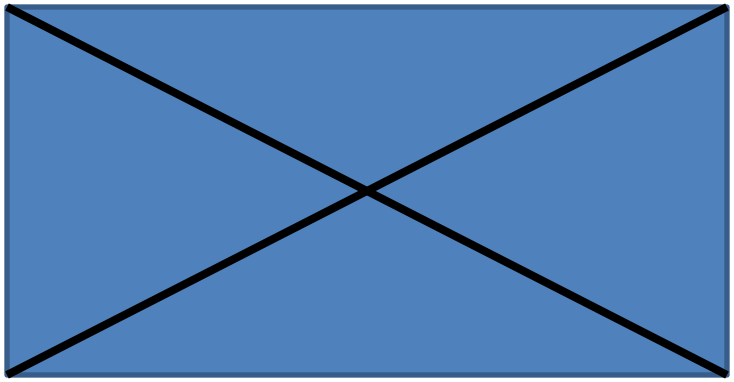
Rhombus

- All Properties of a Parallelogram and…
  - 1. All sides congruent
  - 2. Diagonals perpendicular
  - 3. Diagonals bisect the angles



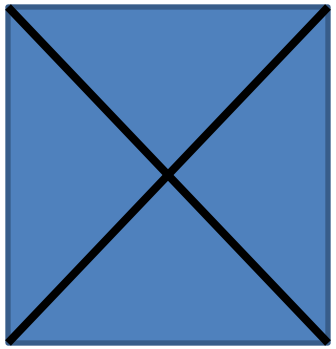
Rectangle

- All properties of a Parallelogram and….
  - 1. All angles congruent (90°)
  - 2. Diagonals congruent



Square

- All Properties of a Parallelogram and a Rhombus and a Rectangle and…
  - 1. All sides congruent
  - 2. Diagonals perpendicular
  - 3. Diagonals bisect the angles
  - 4. All angles congruent (90°)
  - 5. Diagonals congruent



8.5 Trapezoids and Kites

- Quadrilaterals
  - 1. Parallelograms: Both pairs opp sides parallel
  - 2. Trapezoids: One Pair of opposite sides parallel
  - 3. Kites: Two consecutive sides congruent

Trapezoids

- One pair of opposite sides parallel (called the bases)

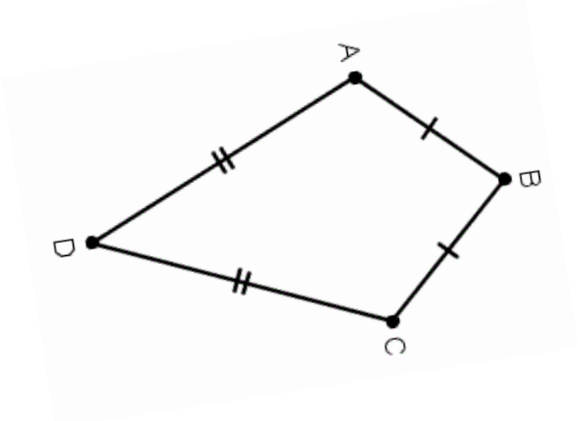
- **Isosceles Trapezoid**: Two legs are congruent: BAIT
  - The diagonals are congruent
  - The midsegment: connects midpoint on each leg,

    Is parallel to each base

    Midsegment = ½(base + base)

Kite

- Kite: Quadrilateral with 2 consecutive sides congruent.



- Diagonals are perpendicular
- One pair of opposite angles are congruent

8.6 Identify Special Quadrilaterals

- **Quadrilaterals (4 sides)**
- **1. Parallelograms 2. Trapezoids 3. Kites**

  Rectangles Isosceles Trap

  Rhombus

  Square