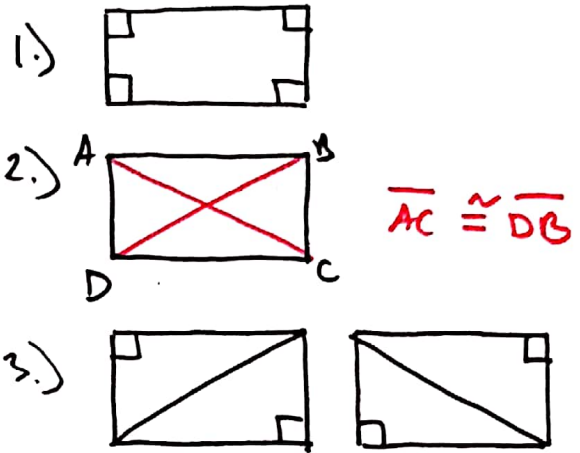


Objective: To apply properties of rectangles, rhombi, and squares 3/5/19

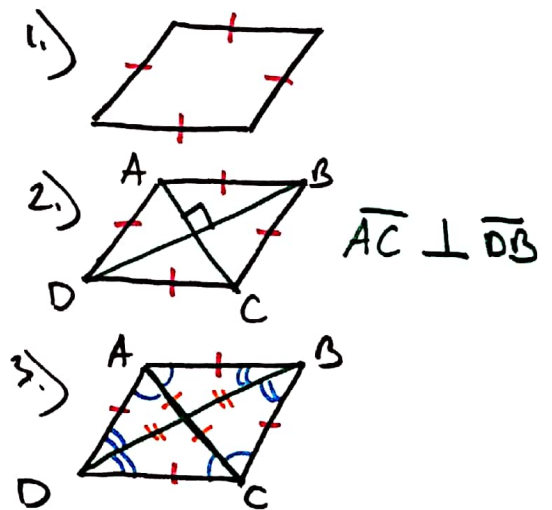
Rectangles: (Parallelogram)

- 1.) All angles are right angles
- 2.) Diagonals are congruent
- 3.) Each diagonal divides quadrilateral into 2 congruent right triangles.



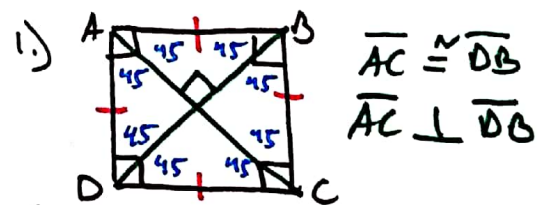
Rhombus: (Parallelogram)

- 1.) All sides are congruent
- 2.) diagonals are perpendicular (⊥)
- 3.) diagonals bisect opposite angles
- 4.) diagonals bisect each other



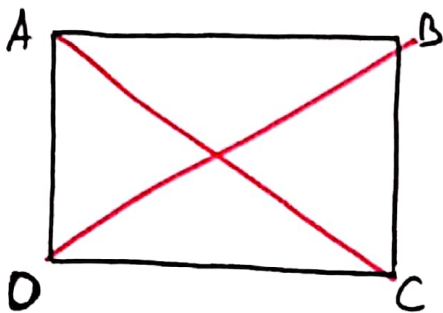
Square: (Parallelogram)

- 1.) All sides are congruent
- 2.) All angles are right angles
- 3.) diagonals are congruent and perpendicular
- 4.) diagonals bisect opposite angles



Examples

1.)



Rectangle ABCD

If $AC = 6x + 2$ and

$DB = 12x - 10$

solve for x and the length of each diagonal

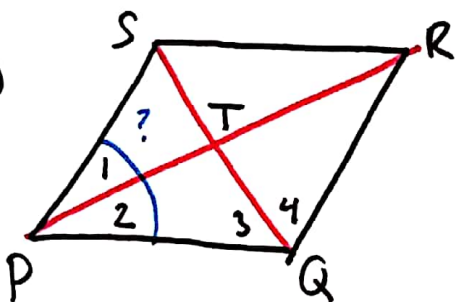
$$\begin{array}{r} \cancel{6x} + 2 = 12x - 10 \\ -6x \quad -6x \\ \hline \end{array}$$

$$\begin{array}{r} 2 = 6x - 10 \\ +10 \quad +10 \\ \hline \end{array}$$

$$\frac{12}{6} = \frac{\cancel{6x}}{6} \quad \boxed{x = 2}$$

$$\boxed{AC = 6(2) + 2 = 14}$$

2.)



Rhombus SPQR

If $\angle SPQ = 8x - 14$ and

$m\angle 1 = 3x + 3$

Find $\angle SPQ$

$$3x + 3 + 3x + 3 = 8x - 14$$

$$\begin{array}{r} \cancel{6x} + 6 = 8x - 14 \\ -6x \quad -6x \\ \hline \end{array}$$

$$\begin{array}{r} 6 = 2x + 14 \\ +14 \quad +14 \\ \hline \end{array}$$

$$\frac{20}{2} = \frac{2x}{2} \quad x = 10$$

$$\angle SPQ = 8(10) - 14$$

$$= 80 - 14$$

$$= 66^\circ$$