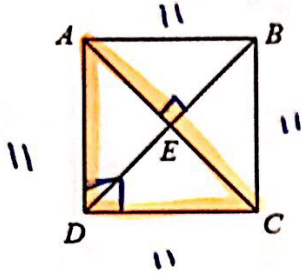


PROPERTIES OF Squares

A square has ALL the properties of a parallelogram, rectangle, and rhombus!

- Opposite sides are parallel
- Opposite sides are congruent
- Opposite angles are congruent
- Consecutive angles are supplementary
- Diagonals bisect each other
- Four right angles
- Diagonals are congruent
- Four congruent sides
- Diagonals are perpendicular
- Diagonals bisect opposite angles

1. If $ABCD$ is a square and $AD = 11$, find each missing value.



$$11^2 + 11^2 = x^2$$

$$121 + 121 = x^2$$

$$242 = x^2$$

$$\sqrt{242} = x$$

$$\sqrt{121} \sqrt{2} = x$$

$$11\sqrt{2} = x$$

$$BC = \frac{11}{1}$$

$$AC = \frac{11\sqrt{2}}{1}$$

$$BD = \frac{11\sqrt{2}}{1}$$

$$EC = \frac{11\sqrt{2}}{2}$$

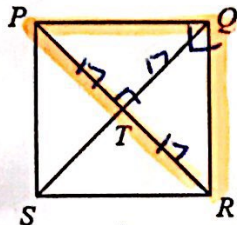
$$m\angle DAB = \frac{90^\circ}{1}$$

$$m\angle AEB = \frac{90^\circ}{1}$$

$$m\angle CBD = \frac{45^\circ}{1}$$

$$m\angle BAC = \frac{45^\circ}{1}$$

2. If $PQRS$ is a square and $TR = 17$, find each missing value.



$$x^2 + x^2 = 34^2$$

$$\frac{2x^2}{2} = \frac{1156}{2}$$

$$x^2 = 578$$

$$x = \sqrt{578} = \sqrt{289} \sqrt{2} = 17\sqrt{2}$$

$$PR = \frac{34}{1}$$

$$QS = \frac{34}{1}$$

$$QT = \frac{17}{1}$$

$$PQ = \frac{17\sqrt{2}}{1}$$

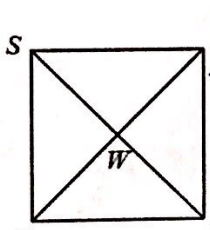
$$m\angle PRS = \frac{45^\circ}{1}$$

$$m\angle STR = \frac{90^\circ}{1}$$

$$m\angle PSR = \frac{90^\circ}{1}$$

$$m\angle QPR = \frac{45^\circ}{1}$$

3. If $STUV$ is a square with $SW = 2x + 13$ and $WU = 8x - 41$, find VT .



$$2x + 13 = 8x - 41$$

$$-2x \quad -2x$$

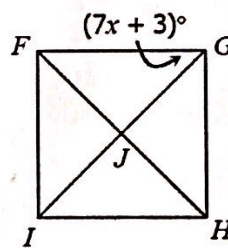
$$13 = 6x - 41$$

$$+41 \quad +41$$

$$\frac{54}{6} = \frac{6x}{6} \quad x = 9$$

$$2(9) + 13 = 31 \quad x = 9$$

4. If $FGHI$ is a square, solve for x .



$$7x + 3 = 45$$

$$-3 \quad -3$$

$$\frac{7x}{7} = \frac{42}{7}$$

$$x = 6$$

5. Which quadrilaterals always have diagonals that are congruent?

- Parallelograms Rhombi
 Rectangles Squares

6. Which quadrilaterals always have consecutive angles that are supplementary?

- Parallelograms Rhombi
 Rectangles Squares

7. Which quadrilaterals always have diagonals that are perpendicular?

- Parallelograms Rhombi
 Rectangles Squares

8. Which quadrilaterals always have diagonals that bisect each other?

- Parallelograms Rhombi
 Rectangles Squares