

Directions: Given the vertices, determine the quadrilaterals most specific classification: Parallelogram, Rectangle, Rhombus, or Square. Justify your answer using the distance formula.

1. $S(-9, 14)$, $T(1, 10)$, $U(-3, 0)$, $V(-13, 4)$

$$\overline{ST} = \sqrt{116}$$

$$\overline{UV} = \sqrt{116}$$

$$\overline{SU} = \sqrt{116}$$

$$\overline{TU} = \sqrt{116}$$

> rhombus/
square?

$$\overline{SU} = \sqrt{232}$$

$$\overline{VT} = \sqrt{232}$$

> \cong diagonals

$STUV$ is a Square

2. $E(-7, -4)$, $F(2, -3)$, $G(0, -7)$, $H(-9, -8)$

$$\overline{EF} = \sqrt{82}$$

$$\overline{GH} = \sqrt{82}$$

$$\overline{EH} = \sqrt{20}$$

$$\overline{FG} = \sqrt{20}$$

> parallelogram
or rectangle?

$$\overline{EG} = \sqrt{58}$$

$$\overline{FH} = \sqrt{146}$$

> \neq diagonals

$EFGH$ is a Parallelogram

Which quadrilaterals always have diagonals that are congruent?

- Parallelograms
- Rectangles
- Rhombi
- Squares

Which quadrilaterals always have consecutive angles that are supplementary?

- Parallelograms
- Rectangles
- Rhombi
- Squares

3. $A(-5, 8)$, $B(-2, 14)$, $C(12, 7)$, $D(9, 1)$

$$\overline{AB} = \sqrt{45}$$

$$\overline{CD} = \sqrt{45}$$

$$\overline{AD} = \sqrt{245}$$

$$\overline{BC} = \sqrt{245}$$

$$\overline{AC} = \sqrt{290}$$

$$\overline{BD} = \sqrt{290}$$

parallelogram
or rectangle?

$ABCD$ is a Rectangle

4. $K(5, -3)$, $L(7, 1)$, $M(9, -3)$, $N(7, -7)$

$$\overline{KL} = \sqrt{20}$$

$$\overline{MN} = \sqrt{20}$$

$$\overline{KN} = \sqrt{20}$$

$$\overline{LM} = \sqrt{20}$$

Rhombus
or square?

$$\overline{KM} = \sqrt{16} = 4$$

$$\overline{LN} = \sqrt{64} = 8$$

$KLMN$ is a Rhombus

Which quadrilaterals always have diagonals that are perpendicular?

- Parallelograms
- Rectangles
- Rhombi
- Squares

Which quadrilaterals always have diagonals that bisect each other?

- Parallelograms
- Rectangles
- Rhombi
- Squares