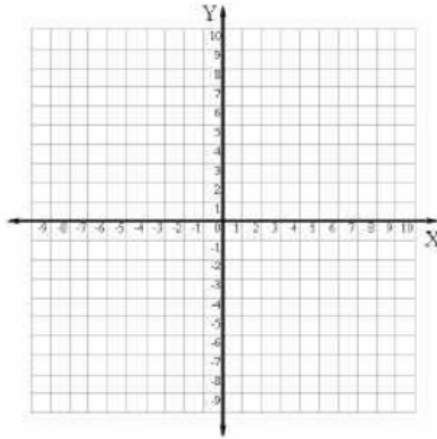
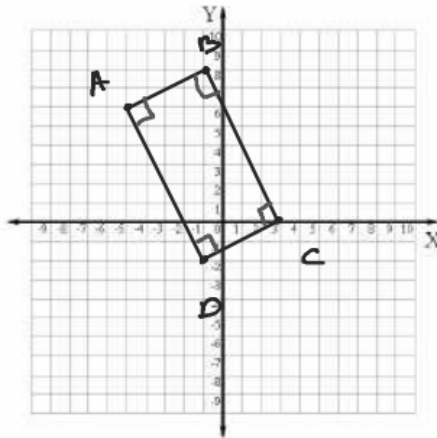


Determine if the quadrilateral is a square.
 $A(2, 2)$, $B(5, -2)$, $C(9, 1)$, $D(6, 5)$



Determine if the quadrilateral is a rectangle.
 $A(-5, 6)$, $B(-1, 8)$, $C(3, 0)$, $D(-1, -2)$



Rectangle

- Parallelogram
 - opp \parallel \rightarrow slope
 - opp \cong \rightarrow dist
- 4 Right \angle 's \rightarrow slope
- Diagonals \cong \rightarrow \cong

Slope

$$AB = \frac{8-6}{-1-(-5)} = \frac{2}{4} = \frac{1}{2}$$

$$BC = \frac{0-8}{3-(-1)} = \frac{-8}{4} = -2$$

$$CD = \frac{-2-0}{-1-3} = \frac{-2}{-4} = \frac{1}{2}$$

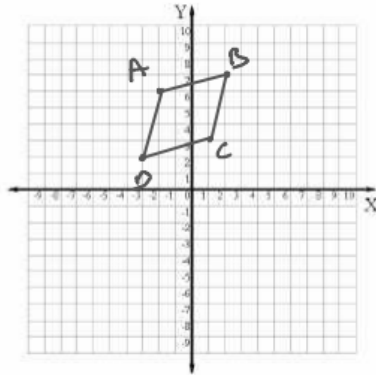
$$AD = \frac{-2-6}{-1-(-5)} = \frac{-8}{4} = -2$$

$$\text{IS } \overline{AB} \parallel \overline{DC}$$

$$\text{IS } \overline{AD} \parallel \overline{BC}$$

Both pairs of opposite side \parallel } Rectangle
 4 Right \angle 's } Rectangle

Determine if the quadrilateral is a rhombus
 A(-3, 2), B(-2, 6), C(2, 7), D(1, 3)



$$AB = \sqrt{17} \quad AC = \sqrt{50}$$

$$BC = \sqrt{17} \quad DB = \sqrt{18}$$

$$CD = \sqrt{17}$$

$$AD = \sqrt{17}$$

Rhombus \rightarrow 4 \cong sides and diagonals not \cong .

Other types of
 Quadrilaterals

Not Parallelograms

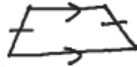
Trapezoid

- 1) One pair of opposite sides \parallel .

Drawing



Isosceles Trapezoid



Kite

Drawing



- 1) 2 pairs of consecutive sides \cong
- 2) Diagonals are \perp
- 3) Exactly one pair of opposite angles \cong .



$$BC = \sqrt{(8-4)^2 + (0-8)^2}$$

$$= \sqrt{4^2 + (-8)^2}$$

$$= \sqrt{16 + 64} = \sqrt{80}$$

$$CD = \sqrt{(-4-4)^2 + (12-8)^2}$$

$$= \sqrt{(-8)^2 + (4)^2}$$

$$= \sqrt{64 + 16} = \sqrt{80}$$

$$PB = \sqrt{8}$$

$$QR = \sqrt{50}$$

$$RS = \sqrt{8}$$

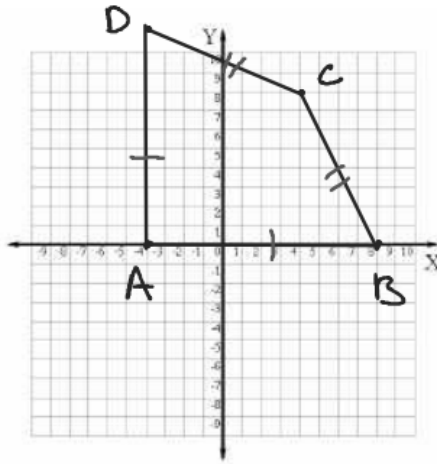
$$PS = \sqrt{50}$$

$$PR = \sqrt{58}$$

$$QS = \sqrt{58}$$

Determine if the quadrilateral is a kite

A(-4, 0), B(8, 0), C(4, 8), D(-4, 12)



$$AB = 12$$

$$AD = 12$$

$$\sqrt{(8-(-4))^2 + (0+0)^2}$$

$$R(3, 5) \quad A(8, 8) \quad M(5, 13) \quad S(0, 10)$$

$$P(-1, 4) \quad Q(-3, 2) \quad R(2, -3) \quad S(4, -1)$$

Slope

$$PA = 1 \quad RS = 1$$

$$QR = -1 \quad PS = -1$$