

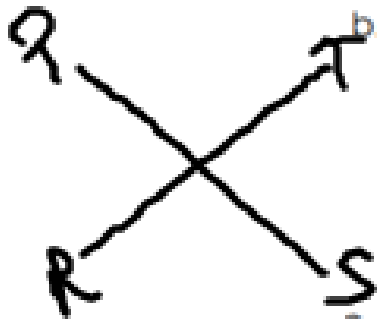
Classify the following descriptive statements as quadrilaterals or non-quadrilaterals. If the statements describe a non-quadrilateral, explain why.

- a. A figure with  $m\angle a = 91$ ,  $m\angle b = 72$ ,  $m\angle c = 86$ , and  $m\angle d = 93$ .

$$91 + 72 + 86 + 93 = 342$$

- Quadrilateral       Non-quadrilateral

$$342 \neq 360$$



- b. A figure with two diagonals,  $\overline{RT}$  and  $\overline{PS}$ , with endpoints that are two nonadjacent vertices.

- Quadrilateral       Non-quadrilateral

$\angle R \hat{=} \angle T$  are opp  $\angle$ 's       $\angle P \hat{=} \angle S$  are opp  $\angle$ 's

- c. A figure with only three consecutive sides.

- Quadrilateral       Non-quadrilateral

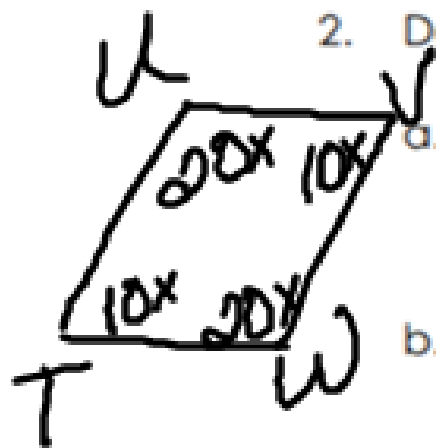
Need 4 sides

2. Determine the measure of each interior angle below.

- a. Parallelogram  $TUVW$  with  $m\angle T = 10x$  and  $\angle U = 20x$

- b. Isosceles trapezoid  $MNPQ$  with  $\angle P \cong \angle Q$ ,  $m\angle Q = 30x$ ,  $\angle M \cong \angle N$ , and  $m\angle M = 20x$

2. Determine the measure of each interior angle below.



a. Parallelogram TUVW with  $m\angle T = 10x$  and  $\angle U = 20x$

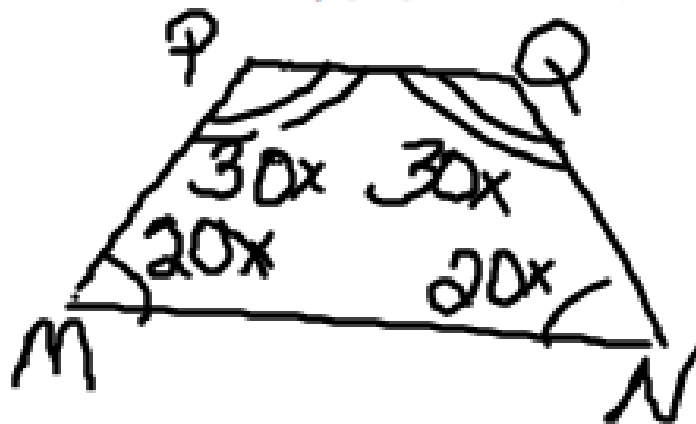
$$20x + 40x = 360$$

$$60x = 360 \quad x = 6$$

$$m\angle T = 60^\circ$$

$$m\angle U = 120^\circ$$

b. Isosceles trapezoid MNPQ with  $\angle P \cong \angle Q$ ,  $m\angle Q = 30x$ ,  $\angle M \cong \angle N$ , and  $m\angle M = 20x$



$$40x + 40x = 360$$

$$100x = 360$$

$$x = 3.6$$

$$m\angle P = m\angle Q = 108^\circ$$

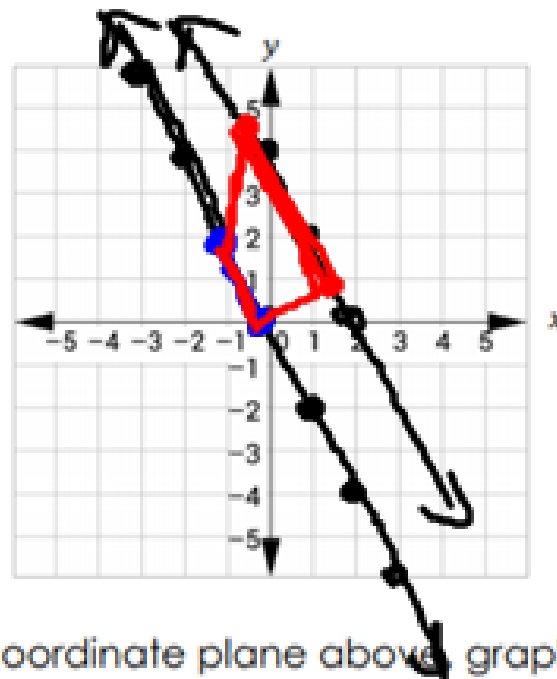
$$m\angle M = m\angle N = 72^\circ$$

The quadrilateral  $ABCD$  has the following characteristics.

$$y = mx + b$$

$\overline{AD}$  can be represented by the equation  $y = -2x$  where  $-1 \leq x \leq 0$ .

$\overline{BC}$  can be represented by the equation  $y = -2x + 4$  where  $-0.5 \leq x \leq 1.5$ .

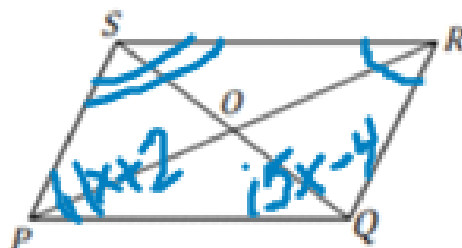


- On the coordinate plane above, graph the figure represented by the information given.
- Describe the type of quadrilateral represented above.

Trapezoid

2. Consider parallelogram PQRS again.

If  $m\angle SPQ = 11x + 2$  and  
 $m\angle POR = 15x - 4$ , find  $m\angle QRS$   
and  $m\angle RSP$ .



$$11x + 2 + 15x - 4 = 180$$

$$\begin{array}{r} 26x - 2 = 180 \\ + 2 \quad + 2 \end{array}$$

$$\frac{26x}{26} = \frac{182}{26}$$

$$x = 7$$

$$\begin{aligned} m\angle QRS &= 11(7) + 2 \\ &= 79^\circ \end{aligned}$$

$$\begin{aligned} m\angle RSP &= 15(7) - 4 \\ &= 101^\circ \end{aligned}$$

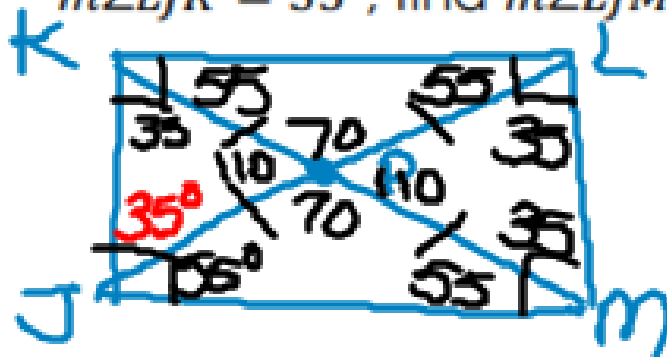
The lengths of diagonals of a rectangle are represented by  $5x$  yards and  $7x - 18$  yards. Find the length of each diagonal.

$$\begin{array}{r} 5x = 7x - 18 \\ - 7x + 7x \\ \hline -2x = -18 \\ x = 9 \end{array}$$

$$5(9) = 45$$

$$7(9) - 18 = 45$$

Rectangle JKLM has diagonals intersecting at  $P$ . If  $m\angle LJK = 35^\circ$ , find  $m\angle LJM$ ,  $m\angle JLK$ ,  $m\angle JPK$ , and  $m\angle JPM$ .



$$\begin{aligned} m\angle LJM &= 55^\circ \\ m\angle JLK &= 55^\circ \\ m\angle JPK &= 110^\circ \\ m\angle JPM &= 70^\circ \end{aligned}$$

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