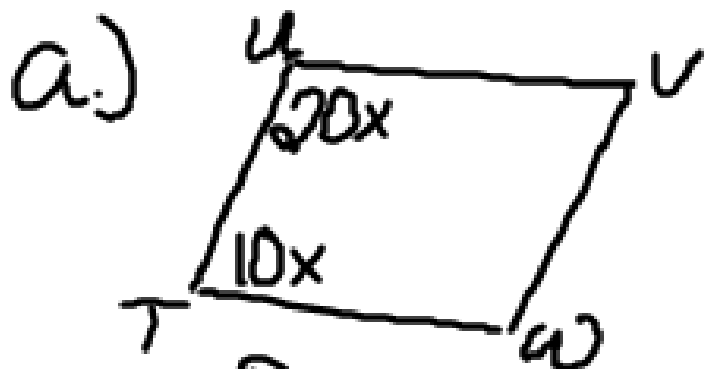


2. Determine the measure of each interior angle below.

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

$$m\angle T = 60^\circ \quad m\angle U = 120^\circ$$

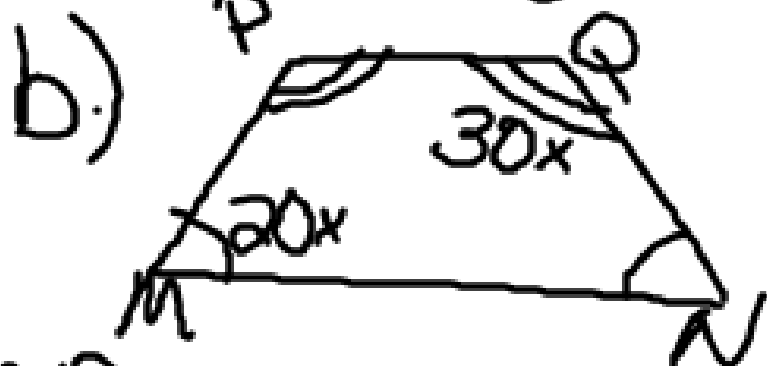
b. Isosceles trapezoid MNPQ with  $\angle P \cong \angle Q$ ,  $m\angle Q = 30x$ ,  
 $\angle M \cong \angle N$ , and  $m\angle M = 20x$



$$10x + 20x = 180$$

$$30x = 180$$

$$x = 6$$



$$20x + 30x = 180$$

$$50x = 180$$

$$x = 3.6$$

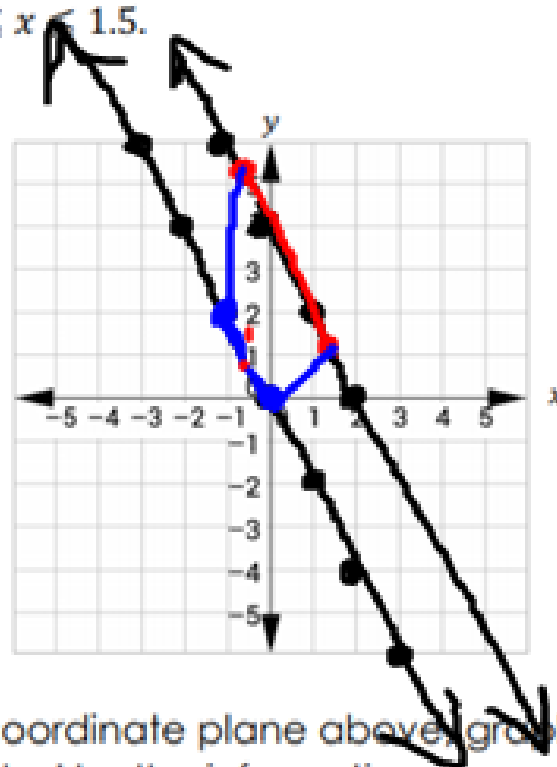
$$m\angle P = m\angle Q = 108^\circ$$
$$m\angle M = m\angle N = 72^\circ$$

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  $-0.5 \leq x \leq 1.5$ .

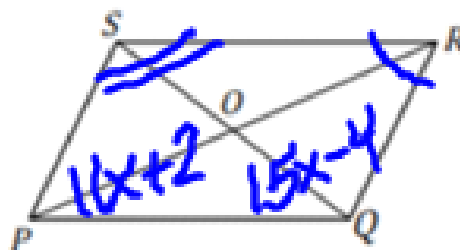


- On the coordinate plane above, graph the figure represented by the information given.
- Describe the type of quadrilateral represented above.

Trapezoid

2. Consider parallelogram PQRS again.

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



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

$$26x - 2 = 180$$

$$\begin{array}{r} 26x - 2 = 180 \\ + 2 \quad + 2 \\ \hline 26x = 182 \\ x = 7 \end{array}$$

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

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

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

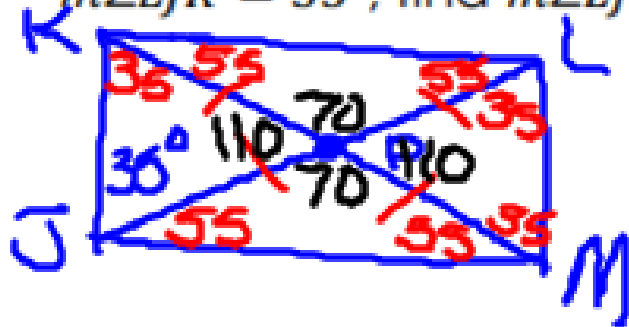
$$\begin{array}{r} 5x = 7x - 18 \\ -7x \quad -7x \\ \hline -2x = -18 \\ x = 9 \end{array}$$

$$5(9) = 45$$

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

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

$$\begin{array}{r} 90 \\ -35 \\ \hline 55 \end{array}$$

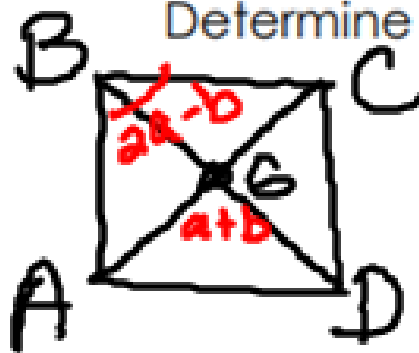


$$\begin{aligned} m\angle LJM &= 55^\circ \\ m\angle JLK &= 55^\circ \\ m\angle JPK &= 110^\circ \\ m\angle JPM &= 70^\circ \end{aligned}$$

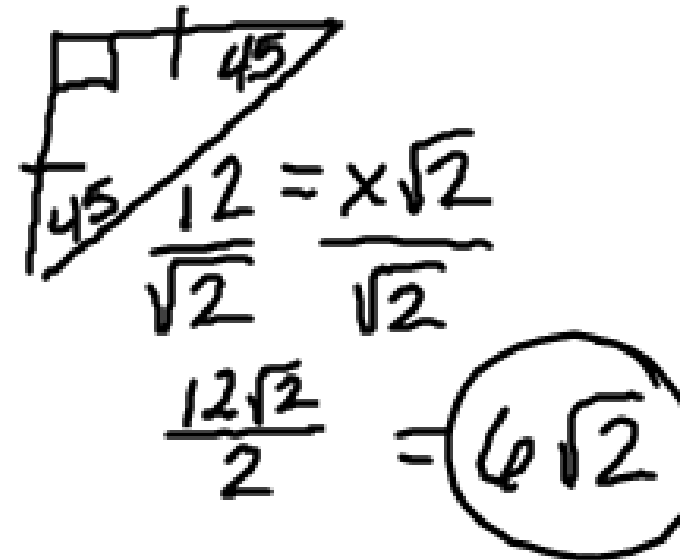
In square  $ABCD$ , the diagonals intersect at  $G$ . If  $AC = 9x - 6$  and  $BD = 21x - 30$ .

$$AC = 18 - 6 = 12 \quad BD = 12$$

Determine the length of the side of the square.



$$\begin{array}{r} 9x - 6 = 21x - 30 \\ -9x \qquad -9x \\ \hline -6 = 12x - 30 \\ +30 \qquad +30 \\ \hline 24 = 12x \\ 2 = x \end{array}$$



In square  $ABCD$ , the diagonals intersect at  $G$ .

If  $m\angle AGD = a + 2b$  and  $m\angle ABC = 2a - b$ , find the values of  $a$  and  $b$ .

$$2(2a - b = 90) \rightarrow 4a - 2b = 180$$

$$a + 2b = 90 \rightarrow a + 2b = 90$$

$$\begin{array}{r} 54 + 2b = 90 \\ -54 \qquad -54 \\ \hline 2b = 36 \quad b = 18 \end{array}$$

$$\begin{array}{r} 5a = 270 \\ \hline a = 54 \end{array}$$