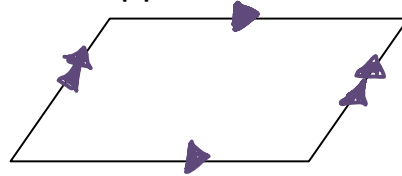


## 6.2 Parallelograms

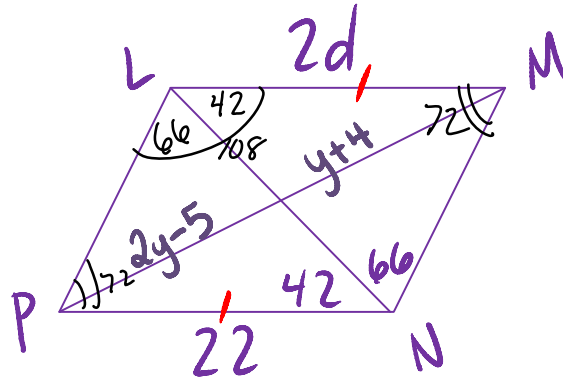
Parallelogram: quadrilateral with parallel opposite sides



Properties:

Theorem	Ex.	Picture
Opp. Sides of  Are $\cong$	$\overline{JK} \cong \overline{ML}$ $\overline{JM} \cong \overline{KL}$	
Opp. $\angle$ 's of  Are $\cong$	$\angle J \cong \angle L$ $\angle M \cong \angle K$	
Cons. $\angle$ 's in  Are supplementary	$m\angle J + m\angle M = 180, m\angle K + m\angle L = 180,$ $m\angle J + m\angle K = 180, m\angle L + m\angle M = 180$	
If  has 1 rt. $\angle$ , it has 4 rt. $\angle$ 's	If $m\angle J = 90$ , then $m\angle K = m\angle M = m\angle L = 90$	
The diagonals of a  Bisect each other	$\overline{JB} \cong \overline{BL}$ $\overline{MB} \cong \overline{BK}$	
Diagonals separate  Into 2 $\cong \Delta$ 's	$\triangle MJK \cong \triangle KLM$	

Ex. 1



$$\frac{2d}{2} = \frac{22}{2} \quad \begin{array}{r} 180 \\ -108 \\ \hline 72 \end{array}$$

$$d = 11$$

Quadrilateral  $LMNP$ , is a parallelogram. Find  $d, m\angle PLM, m\angle LMN, m\angle PLN$ , and  $y$ .

$$\begin{array}{r} 2y - 5 = y + 4 \\ -y \quad -y \\ \hline y - 5 = 4 \\ +5 \quad +5 \\ \hline y = 9 \end{array}$$

Ex. 2 What are the coordinates of the intersection of the diagonals of parallelogram  $MNPR$  with vertices  $M(-3,0), N(-1,3), P(5,4)$ , and  $R(3,1)$ ?

midpt

$$\left( \frac{-3+5}{2}, \frac{0+4}{2} \right) = (1, 2)$$

