

Warm Up

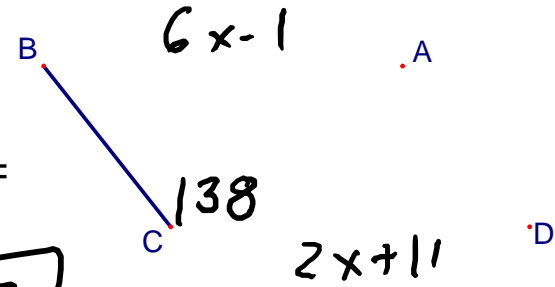
Use the parallelogram to find the following:

1) If $m\angle C = 138$, then $m\angle A = \boxed{138}$

2) If $AB = 6x - 1$ and $CD = 2x + 11$, then $AB =$

$$\begin{aligned} 6x - 1 &= 2x + 11 \\ 4x - 1 &= 11 \\ 4x &= 12 \end{aligned} \quad \rightarrow \quad x = 3$$

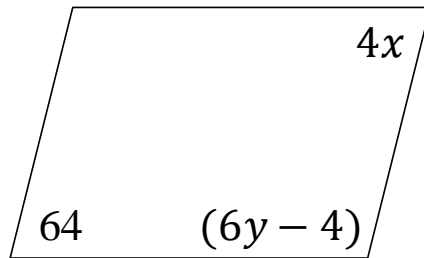
$$AB = 6(3) - 1 = \boxed{17}$$



3) If $m\angle C = x + 65$ and $m\angle B = 3x - 25$, then $m\angle C = 35 + 65 = 100$

$$\begin{aligned} x + 65 + 3x - 25 &= 180 \\ 4x + 40 &= 180 \\ 4x &= 140 \\ x &= 35 \end{aligned}$$

4) Find the x and y values that would make the figure a parallelogram.



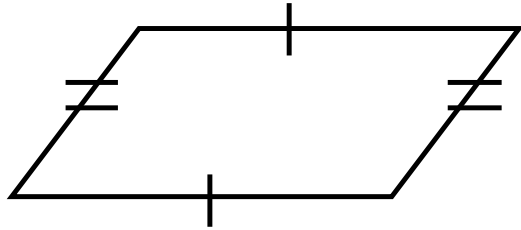
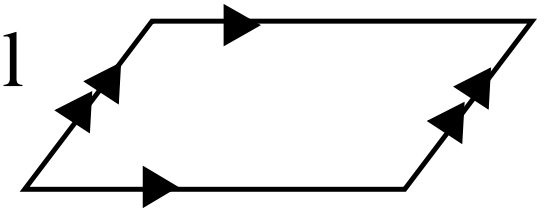
$x =$

$y =$

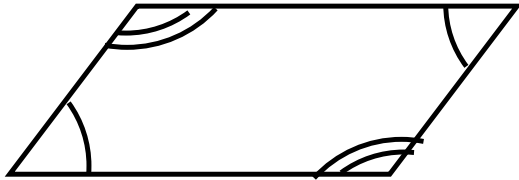
$$\begin{aligned} 4x &= 64 \\ x &= 16 \end{aligned} \quad \begin{aligned} 6y - 4 + 64 &= 180 \\ 6y + 60 &= 180 \\ 6y &= 120 \\ y &= 20 \end{aligned}$$

Rectangles, Rhombi, and Squares

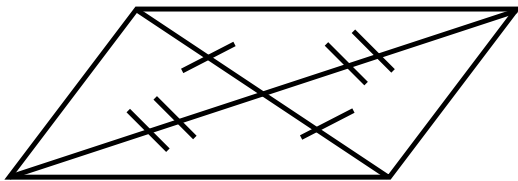
Parallelogram: Opposite sides are parallel



Opposite sides are congruent

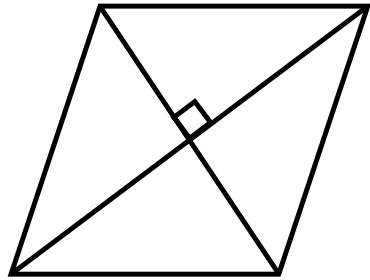
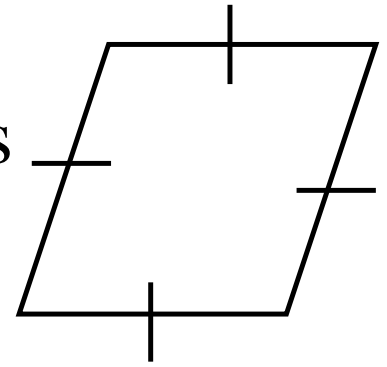


Opposite angles are congruent

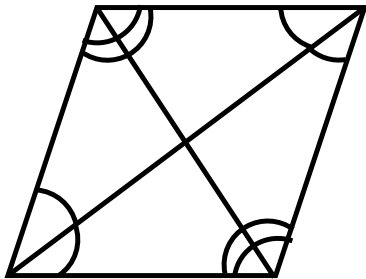


Diagonals bisect each other

Rhombus: Parallelogram with 4 congruent sides

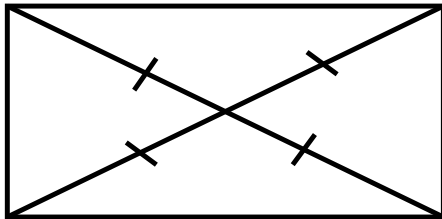


- Diagonals are perpendicular



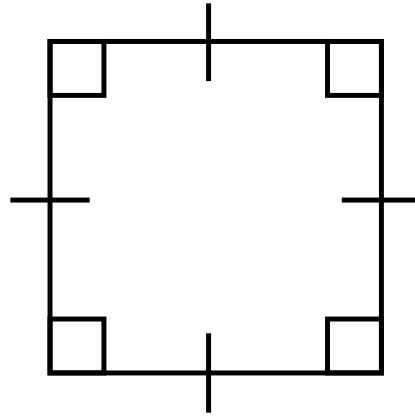
- Diagonals bisect angles

Rectangle: Parallelogram with 4 right angles



- Diagonals are congruent

Square: Parallelogram with 4 congruent sides and 4 right angles
(a rectangle that is a rhombus)



Quadrilateral

- Angles add to 360

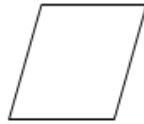
Parallelogram

- Quadrilateral with 2 pairs of parallel sides
- Opposite angles congruent
- Opposite sides congruent
- Diagonals bisect each other



Rhombus

- 4 congruent sides
- Diagonals perpendicular
- Diagonals are angle bisectors

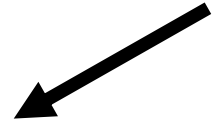


Rectangle

- 4 right angles
- Diagonals congruent



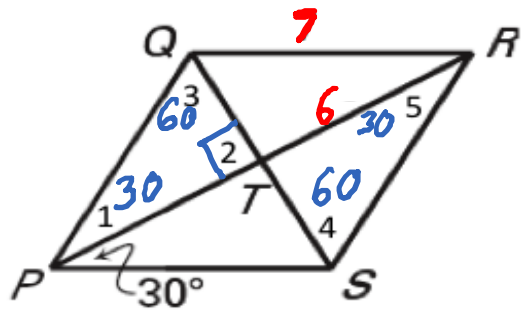
Square



1. rhombus PQRS

RT = 6

$$\begin{array}{r} 180 \\ -90 \\ \hline 90 \\ -30 \\ \hline 60 \end{array}$$



$$m\angle 1 = \underline{30}$$

$$m\angle 2 = \underline{90}$$

$$m\angle 3 = \underline{60}$$

$$m\angle 4 = \underline{60}$$

$$m\angle 5 = \underline{30}$$

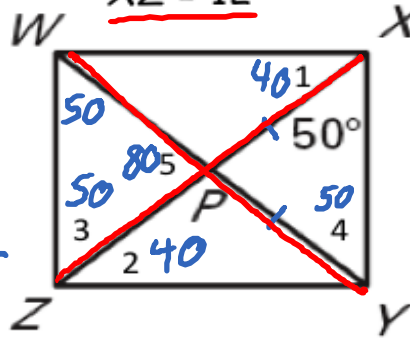
$$RP = \underline{12}$$

$$RS = \underline{7}$$

2. rectangle WXYZ

XZ = 12

$$\begin{array}{r} 180 \\ -50 \\ \hline 130 \\ -50 \\ \hline 80 \end{array}$$



$$m\angle 1 = \underline{40}$$

$$m\angle 2 = \underline{40}$$

$$m\angle 3 = \underline{50}$$

$$m\angle 4 = \underline{50}$$

$$m\angle 5 = \underline{80}$$

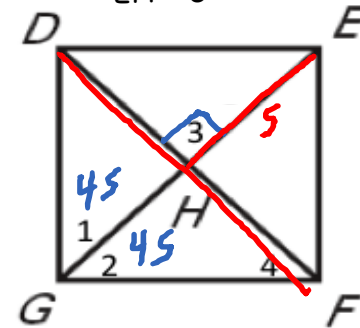
$$PY = \underline{6}$$

$$WY = \underline{12}$$

3. square DEFG

EH = 5

$$\frac{90}{2} = 45$$



$$m\angle 1 = \underline{45}$$

$$m\angle 2 = \underline{45}$$

$$m\angle 3 = \underline{90}$$

$$m\angle 4 = \underline{45}$$

$$m\angle DEF = \underline{90}$$

$$DF = \underline{10}$$

$$HF = \underline{5}$$