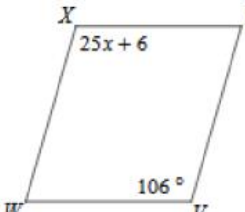


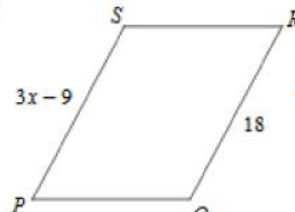
**Fill in the blanks to complete each definition or theorem.**

- If a quadrilateral is a parallelogram, then its consecutive angles are supplementary.
- If a quadrilateral is a parallelogram, then its opposite sides are congruent.
- A parallelogram is a quadrilateral with two pairs of opposite parallel sides.
- If a quadrilateral is a parallelogram, then its diagonals bisect each other.
- If a quadrilateral is a parallelogram, then its opposite angles are congruent.

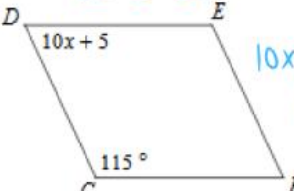
**Find the value of x that would ensure the following figures are parallelograms.**

1)  opp ∠'s congruent  

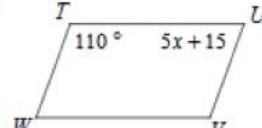
$$\begin{array}{r} 25x+6 = 106 \\ -6 \quad -6 \\ \hline 25x = 100 \\ \frac{25x}{25} = \frac{100}{25} \\ x = 4 \end{array}$$

2)  opp sides congruent  

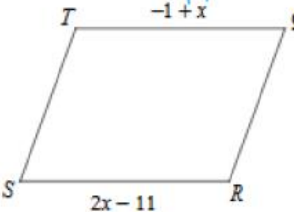
$$\begin{array}{r} 3x-9 = 18 \\ 3x = 27 \\ x = 9 \end{array}$$

3)  consecutive ∠'s supp.  

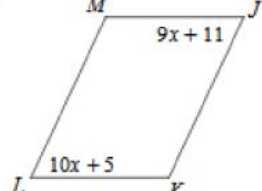
$$\begin{array}{r} 10x+5 + 115 = 180 \\ 10x+120 = 180 \\ 10x = 60 \\ x = 6 \end{array}$$

4)  consecutive ∠'s supp.  

$$\begin{array}{r} 5x+15 + 110 = 180 \\ 5x+125 = 180 \\ \frac{5x}{5} = \frac{55}{5} \\ x = 11 \end{array}$$

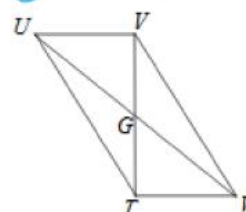
5)  opp. sides congruent  

$$\begin{array}{r} -1+x = 2x-11 \\ +1 \quad +1 \\ \hline 10+x = 2x \\ \frac{10+x}{-x} = \frac{2x}{-x} \\ 10 = x \end{array}$$

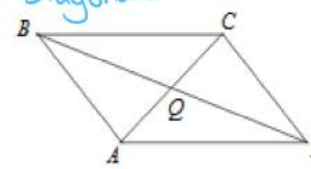
6)  opp ∠'s congruent  

$$\begin{array}{r} 9x+11 = 10x+5 \\ -9x \quad -9x \\ \hline 11 = x+5 \\ -5 \quad -5 \\ \hline 6 = x \end{array}$$

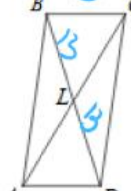
7) Diagonals Bisect  
 $UG = 12$   
 $GW = x+1$   

$$\begin{array}{r} 12 = x+1 \\ -1 \quad -1 \\ \hline x = 12 \end{array}$$


8) Diagonals Bisect  
 $BQ = 20$   
 $QD = 4 + 4x$   

$$\begin{array}{r} 4+4x = 20 \\ \frac{4x}{4} = \frac{16}{4} \\ x = 4 \end{array}$$


9) Diagonals bisect each other  
 $BD = 26$   
 $LD = x+3$   
 If  $BD = 26$   
 $BL = 13 + LD = 13$   

$$\begin{array}{r} x+3 = 13 \\ -3 \quad -3 \\ \hline x = 10 \end{array}$$


10) Diagonals Bisect each other  
 $HW = 19$   
 $UW = 4x - 2$   
 If  $HW = 19$   
 Then  $UW = 38$   

$$\begin{array}{r} 4x-x = 38 \\ \frac{3x}{3} = \frac{38}{3} \\ x = 10 \end{array}$$
