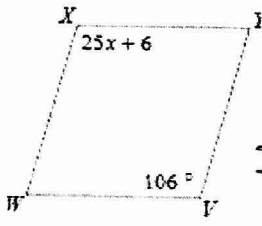


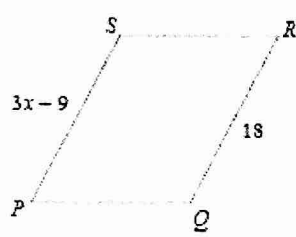
Fill in the blanks to complete each definition or theorem.

1. If a quadrilateral is a parallelogram, then its consecutive angles are Supplementary.
2. If a quadrilateral is a parallelogram, then its opposite sides are Congruent.
3. A parallelogram is a quadrilateral with two pairs of parallel sides.
4. If a quadrilateral is a parallelogram, then its diagonals bisect each other.
5. If a quadrilateral is a parallelogram, then its opposite angles are Congruent.

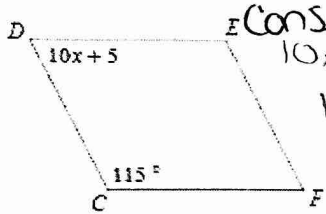
Find the value of x that would ensure the following figures are parallelograms.

1)  opp. sides \cong

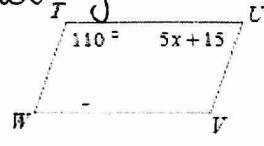
$$\begin{array}{r} 25x + 6 = 106 \\ -6 \quad -6 \\ \hline 25x = 100 \\ \frac{25x}{25} = \frac{100}{25} \\ \boxed{x = 4} \end{array}$$

2)  opp. sides \cong

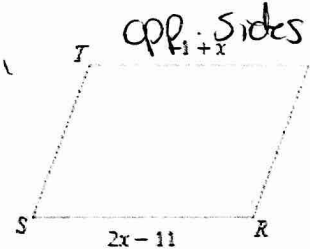
$$\begin{array}{r} 3x - 9 = 18 \\ +9 \quad +9 \\ \hline 3x = 27 \\ \frac{3x}{3} = \frac{27}{3} \\ \boxed{x = 9} \end{array}$$

3)  Consecutive sides supplementary

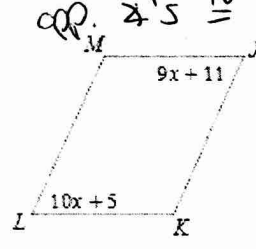
$$\begin{array}{r} 10x + 5 + 115 = 180 \\ 10x + 120 = 180 \\ -120 \quad -120 \\ \hline 10x = 60 \\ \frac{10x}{10} = \frac{60}{10} \\ \boxed{x = 6} \end{array}$$

 opp. sides \cong

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

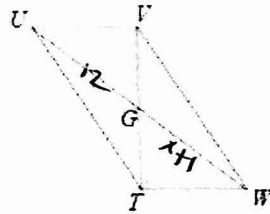
5)  opp. sides \cong

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

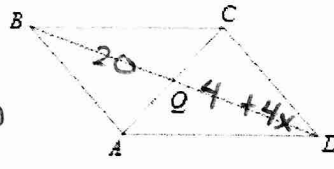
6)  opp. sides \cong

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

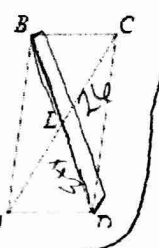
7) Diagonals bisect
 $CG = 12$
 $GF = x + 1$
 $12 = x + 1$
 $-1 \quad -1$
 $\boxed{11 = x}$



8) Diagonals bisect
 $BQ = 20$
 $QD = 4 + 4x$
 $4 + 4x = 20$
 $-4 \quad -4$
 $\frac{4x}{4} = \frac{16}{4}$
 $\boxed{x = 4}$



Diagonals bisect each other
 9) $BD = 26$
 $LD = x + 3$
 $BL = LD$
 $2(LD) = BD$
 $2(x + 3) = 26$
 $2x + 6 = 26$
 $-6 \quad -6$
 $\frac{2x}{2} = \frac{20}{2}$
 $\boxed{x = 10}$



10) $HW = 19$
 $UH = 4x - 2$
 $2(19) = 4x - 2$
 $38 = 4x - 2$
 $+2 \quad +2$
 $\frac{40}{4} = \frac{4x}{4}$
 $\boxed{x = 10}$

