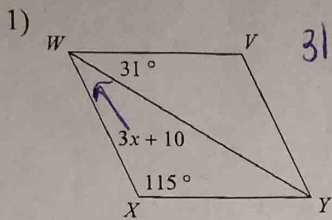


key

Properties of Parallelograms

Solve for  $x$ . Each figure is a parallelogram.

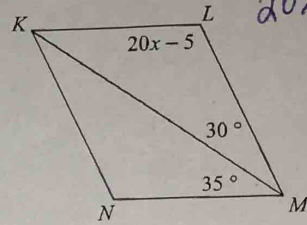


$$31 + 3x + 10 + 115 = 180$$

$$3x + 156 = 180$$

$$3x = 24$$

$$x = 8$$

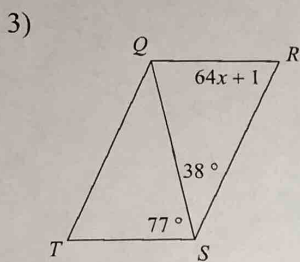


$$20x - 5 + 30 + 35 = 180$$

$$20x + 60 = 180$$

$$20x = 120$$

$$x = 6$$

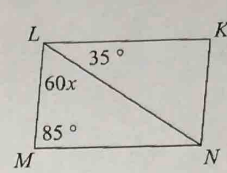


$$77 + 38 + 64x + 1 = 180$$

$$64x + 116 = 180$$

$$64x = 64$$

$$x = 1$$



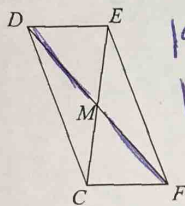
$$35 + 60x + 85 = 180$$

$$60x + 120 = 180$$

$$60x = 60$$

$$x = 1$$

5)  $DM = 19$   
 $MF = 8x + 3$

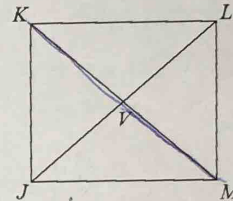


$$19 = 8x + 3$$

$$16 = 8x$$

$$x = 2$$

6)  $KM = 38$   
 $VM = 3x - 2$



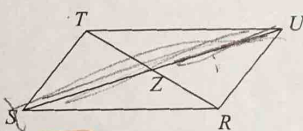
$$\frac{1}{2}(38) = 3x - 2$$

$$19 = 3x - 2$$

$$21 = 3x$$

$$x = 7$$

7)  $ZU = 24$   
 $SU = 8x$

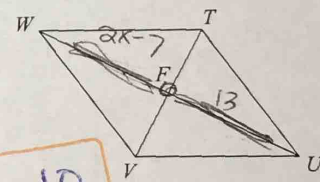


$$24 = \left(\frac{1}{2}\right)(8x)$$

$$24 = 4x$$

$$x = 6$$

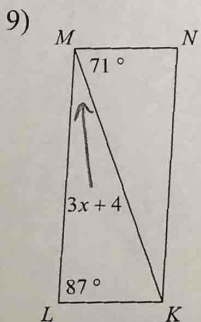
8)  $UF = 13$   
 $FW = 2x - 7$



$$13 = 2x - 7$$

$$20 = 2x$$

$$x = 10$$

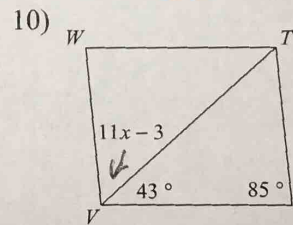


$$71 + 3x + 4 + 87 = 180$$

$$3x + 162 = 180$$

$$3x = 18$$

$$x = 6$$

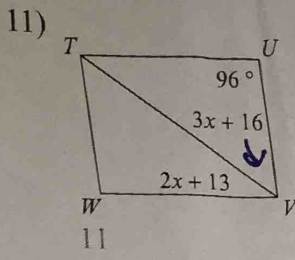


$$43 + 11x - 3 + 85 = 180$$

$$11x + 125 = 180$$

$$11x = 55$$

$$x = 5$$

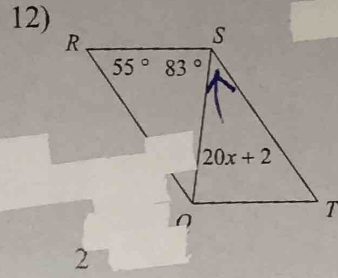


$$96 + 3x + 16 + 2x + 13 = 180$$

$$5x + 125 = 180$$

$$5x = 55$$

$$x = 11$$



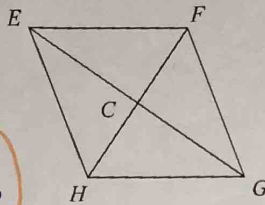
$$55 + 83 + 20x + 2 = 180$$

$$20x + 140 = 180$$

$$20x = 40$$

$$x = 2$$

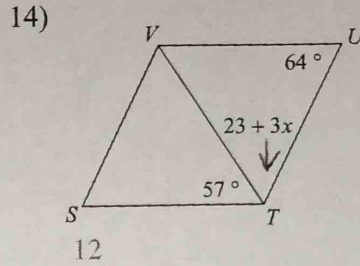
13)  $FC = 13$   
 $CH = 2x - 11$



$$13 = 2x - 11$$

$$24 = 2x$$

$$x = 12$$

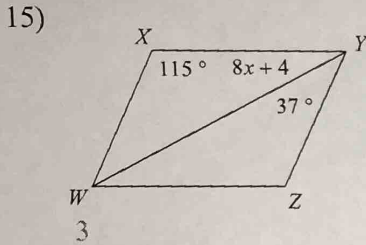


$$57 + 23 + 3x + 64 = 180$$

$$144 + 3x = 180$$

$$3x = 36$$

$$x = 12$$



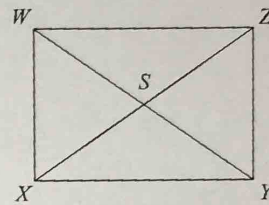
$$115 + 8x + 4 + 37 = 180$$

$$8x + 156 = 180$$

$$8x = 24$$

$$x = 3$$

16)  $YW = 44$   
 $SW = 2x + 6$



$$44 = 2(2x + 6)$$

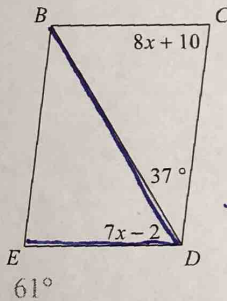
$$22 = 2x + 6$$

$$16 = 2x$$

$$x = 8$$

Find the measurement indicated in each parallelogram.

17) Find  $m\angle BDE$   $8x + 10 + 37 + 7x - 2 = 180$   
 $15x + 45 = 180$



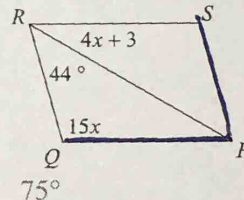
$$15x = 135$$

$$x = 9$$

$$7(9) - 2$$

$$\angle BDE = 61$$

18) Find  $m\angle QPS$



$$4x + 3 + 44 + 15x = 180$$

$$19x + 47 = 180$$

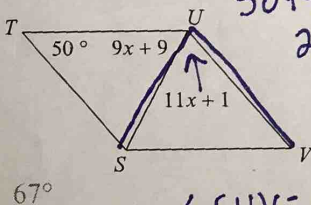
$$19x = 133$$

$$\angle PQR = 15(7) = 105^\circ$$

$$\angle SPQ = 75^\circ$$

$$x = 7$$

19) Find  $m\angle SUV$



$$50 + 9x + 9 + 11x + 1 = 180$$

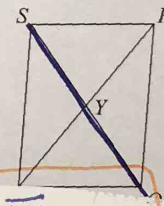
$$20x + 60 = 180$$

$$20x = 120$$

$$x = 6$$

$$\angle SUV = 11(6) + 1 = 67^\circ$$

20)  $QY = 7x - 1$   
 $QS = 12x$   
Find  $QS$



$$\frac{1}{2}(12x) = 7x - 1$$

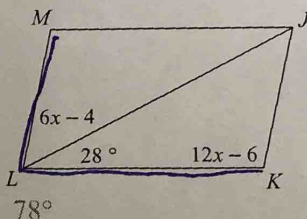
$$6x = 7x - 1$$

$$-x = -1$$

$$x = 1$$

$$QS = 12$$

21) Find  $m\angle KLM$



$$6x - 4 + 28 + 12x - 6 = 180$$

$$18x + 18 = 180$$

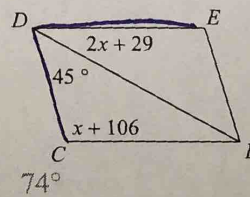
$$18x = 162$$

$$x = 9$$

$$\angle KLM = 28 + 6(9) - 4$$

$$\angle KLM = 78^\circ$$

22) Find  $m\angle CDE$



$$2x + 29 + 45 + x + 106 = 180$$

$$3x + 180 = 180$$

$$3x = 0$$

$$x = 0$$

$$\angle CDE = 45 + 2(0) + 29$$

$$\angle CDE = 74^\circ$$