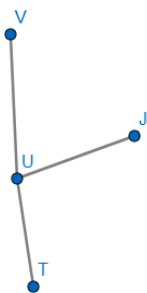
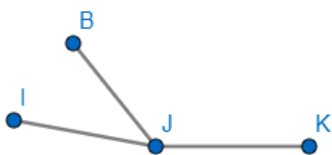


**Find the answers to the HW below on PAGE 3.**

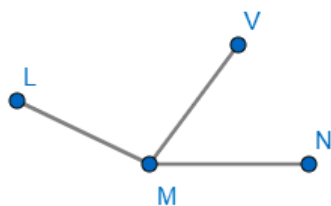
1. J is the midpoint of segment CT.  $CJ = 3x + 8$  and  $JT = 6x + 5$ . Find  $x$  and CT.
2. R is between Q and S.  $QR = 9x - 1$ ,  $RS = 11x$ , and  $QS = 19$ . Find  $x$ .
3. S is between R and T.  $RS = 8$ ,  $ST = x - 8$ , and  $RT = 2x - 12$ . Find  $x$ .
4. V is between U and W.  $UV = 2x - 11$ ,  $VW = 10$ , and  $UW = x + 5$ . Find  $x$ .
5. Angles A and B are supplementary. If  $\angle A = 156$  and  $\angle B = x - 2$ , find  $x$ .
6. Angles D and M are supplementary. If  $\angle D = 2 + 4x$  and  $\angle M = 2x + 4$ , find  $x$  and  $m\angle D$ .
7. Angles K and W are supplementary. If  $\angle K = 4x + 3$  and  $\angle W = x + 12$ , find  $x$  and  $m\angle W$ .
8. Angles A and O are complementary angles. If  $\angle A = 2x$  and  $\angle O = x + 15$ , find  $x$ .
9. Angles J and R are complementary angles. If  $\angle J = 3x + 2$  and  $\angle R = 2x + 3$ , find  $x$  and  $m\angle R$ .
10. If  $\angle VUT = 175$ ,  $m\angle VUJ = 17x - 3$ , and  $m\angle JUT = 17x + 8$ , find  $x$ .



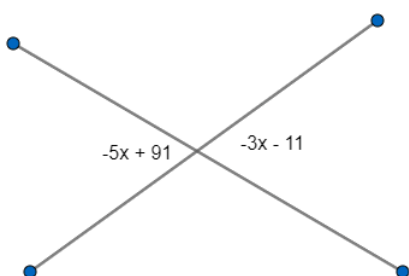
11. If  $m\angle BJK = 146 + 2x$ ,  $m\angle IJK = 172$ , and  $m\angle IJB = 2x + 26$ , find  $x$ .



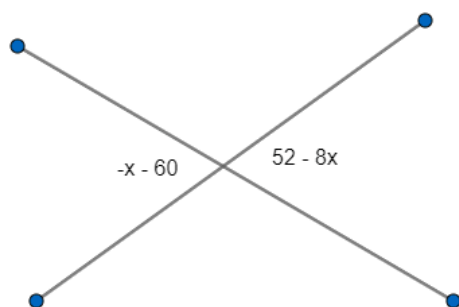
12. If  $m\angle LMN = 135$ ,  $m\angle LMV = -1 + 45x$ , and  $m\angle VMN = 23x$ , find  $x$ .



13. Find x.

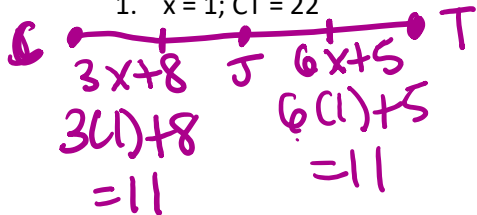


14. Find x.



Answers:

1.  $x = 1$ ;  $CT = 22$

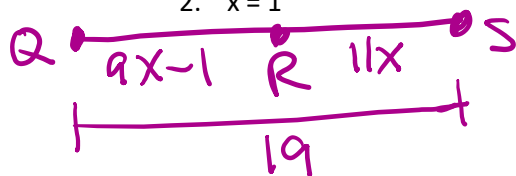


$$\begin{array}{r}
 3x+8 = 6x+5 \\
 -3x \quad -3x \\
 8 = 3x+5 \\
 -5 \quad -5 \\
 3 = 3x \\
 \frac{3}{3} = \frac{3x}{3}
 \end{array}$$

$$x = 1$$

$$\begin{array}{l}
 CT = 11 + 11 \\
 \hline
 CT = 22
 \end{array}$$

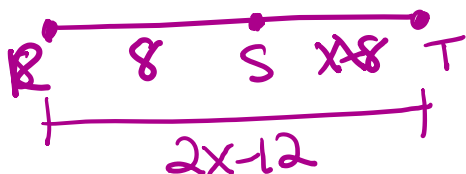
2.  $x = 1$



$$\begin{array}{r}
 9x-1 + 11x = 19 \\
 20x-1 = 19 \\
 +1 \quad +1 \\
 20x = 20 \\
 \frac{20x}{20} = \frac{20}{20}
 \end{array}$$

$$x = 1$$

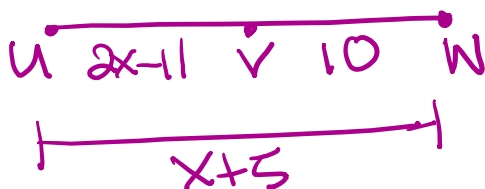
3.  $x = 12$



$$\begin{array}{r}
 8 + x - 8 = 2x - 12 \\
 x = 2x - 12 \\
 -x \quad -x \\
 0 = x - 12 \\
 +12 \quad +12
 \end{array}$$

$$x = 12$$

4.  $x = 6$



$$\begin{array}{r}
 2x-11 + 10 = x+5 \\
 2x-1 = x+5 \\
 -x \quad -x \\
 x-1 = 5 \\
 +1 \quad +1
 \end{array}$$

$$x = 6$$

5.  $x = 26$

$$\begin{array}{r}
 m\angle A + m\angle B = 180^\circ \\
 156 + x - 2 = 180 \\
 x + 154 = 180 \\
 -154 \quad -154 \\
 x = 26
 \end{array}$$

6.  $x = 29$ ;  $m\angle D = 118$

$$\begin{array}{r}
 m\angle D + m\angle M = 180^\circ \\
 2+4x + 2x+4 = 180^\circ \\
 6x+6 = 180^\circ \\
 -6 \quad -6 \\
 6x = 174^\circ \\
 \frac{6x}{6} = \frac{174^\circ}{6}
 \end{array}$$

$$x = 29$$

$$\begin{array}{r}
 m\angle D = 2+4x \\
 = 2+4(29) \\
 \hline
 m\angle D = 118
 \end{array}$$

7.  $x = 33$ ;  $m\angle W = 45$

$$\begin{aligned} m\angle K + m\angle W &= 180^\circ \\ 4x + 3 + x + 12 &= 180 \\ 5x + 15 &= 180 \\ -15 & -15 \end{aligned}$$

$$\begin{aligned} 5x &= 165 \\ \underline{5} & \underline{5} \\ x &= 33 \end{aligned}$$

$$\begin{aligned} m\angle W &= x + 12 \\ &= 33 + 12 \\ m\angle W &= 45 \end{aligned}$$

8.  $x = 25$

$$\begin{aligned} m\angle A + m\angle O &= 90 \\ 2x + x + 15 &= 90 \\ 3x + 15 &= 90 \\ -15 & -15 \end{aligned}$$

$$\begin{aligned} 3x &= 75 \\ \underline{3} & \underline{3} \\ x &= 25 \end{aligned}$$

$$x = 25$$

9.  $x = 17$ ;  $m\angle R = 37$

$$\begin{aligned} m\angle J + m\angle R &= 90 \\ 3x + 2 + 2x + 3 &= 90 \\ 5x + 5 &= 90 \\ -5 & -5 \end{aligned}$$

$$\begin{aligned} 5x &= 85 \\ \underline{5} & \underline{5} \\ x &= 17 \end{aligned}$$

$$\begin{aligned} m\angle R &= 2x + 3 \\ &= 2(17) + 3 \\ m\angle R &= 37 \end{aligned}$$

10.  $x = 5$

$$\begin{aligned} m\angle VUT &= m\angle VUJ + m\angle JUT \\ 175 &= 17x - 3 + 17x + 8 \\ 175 &= 34x + 5 \\ -5 & -5 \end{aligned}$$

$$\begin{aligned} 170 &= 34x \\ \underline{34} & \underline{34} \\ x &= 5 \end{aligned}$$

11.  $x = 0$

$$\begin{aligned} m\angle IJK &= m\angle BJK + m\angle IJB \\ 172 &= 146 + 2x + 2x + 26 \\ 172 &= 4x + 172 \\ -172 & -172 \end{aligned}$$

$$\begin{aligned} 0 &= 4x \\ x &= 0 \end{aligned}$$

12.  $x = 2$

$$\begin{aligned} m\angle LMN &= m\angle LMV + m\angle VMN \\ 135 &= -1 + 45x + 23x \\ 135 &= -1 + 68x \\ +1 & +1 \end{aligned}$$

$$\begin{aligned} 136 &= 68x \\ \underline{68} & \underline{68} \\ x &= 2 \end{aligned}$$

13.  $x = 51$

angles are congruent

$$\begin{aligned} -5x + 91 &= -3x - 11 \\ +3x & +3x \end{aligned}$$

$$\begin{aligned} -2x + 91 &= -11 \\ -91 & -91 \end{aligned}$$

$$\begin{aligned} -2x &= -102 \\ -2 & -2 \end{aligned}$$

$$x = 51$$

14.  $x = 16$

$$\begin{aligned} -x - 60 &= 52 - 8x \\ +8x & +8x \\ 7x - 60 &= 52 \\ +60 & +60 \end{aligned}$$

$$\begin{aligned} 7x &= 112 \\ \underline{7} & \underline{7} \\ x &= 16 \end{aligned}$$