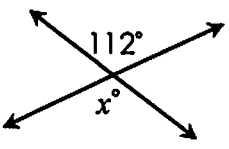
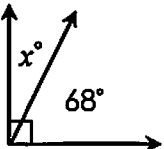
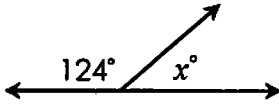
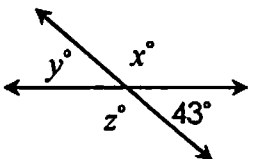
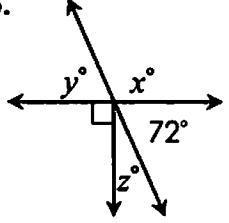


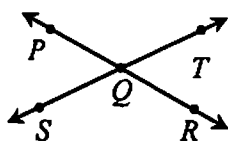
Using ANGLE RELATIONSHIPS to find ANGLE MEASURES

Directions: Find the missing measures in each figure. Keep the angle relationships in mind.

<p>1. </p> <p>$X = 112^\circ$</p>	<p>2. </p> <p>$X = 22^\circ$</p>	<p>3. </p> <p>$X = 56^\circ$</p>
<p>4. </p> <p>$X = 137^\circ$ $Y = 43^\circ$ $Z = 137^\circ$</p>	<p>5. </p> <p>$X = 108^\circ$ $Y = 72^\circ$ $Z = 18^\circ$</p>	
<p>6. $\angle 1$ and $\angle 2$ are vertical angles. If the measure of $\angle 2$ is 105°, find the measure of $\angle 1$.</p> <p>$m\angle 1 = 105^\circ$</p>	<p>7. $\angle A$ and $\angle B$ are complementary angles. If the measure of $\angle A$ is 42°, find the measure of $\angle B$.</p> <p>$m = 48^\circ$</p>	
<p>8. $\angle P$ and $\angle Q$ are supplementary angles. If the measure of $\angle Q$ is 64°, find the measure of $\angle P$.</p> <p>$m\angle P = 116^\circ$</p>	<p>9. $\angle 1$ and $\angle 2$ form a linear pair. If the measure of $\angle 1$ is 113°, find the measure of $\angle 2$.</p>	

USING ALGEBRA

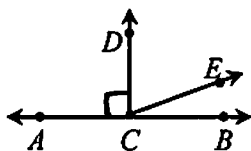
10. If $m\angle PQT = (3x + 47)^\circ$ and $m\angle SQR = (6x - 25)^\circ$, find the measure of $\angle SQR$.



$$\begin{aligned} 3x + 47 &= 6x - 25 \\ 47 &= 3x - 25 \\ 72 &= 3x \\ x &= 24 \end{aligned}$$

$$m\angle SQR: 6(24) - 25 = 119^\circ$$

11. If $\overline{AB} \perp \overline{CD}$, $m\angle DCE = (7x + 2)^\circ$ and $m\angle ECB = (x + 8)^\circ$, find the measure of $\angle DCE$.



$$\begin{aligned} 7x + 2 + x + 8 &= 90 \\ 8x + 10 &= 90 \\ 8x &= 80 \\ x &= 10 \end{aligned}$$

$$m\angle DCE: 7(10) + 2 = 72^\circ$$

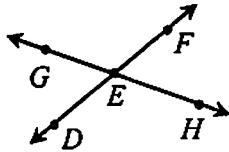
12. If $m\angle KNM = (8x - 5)^\circ$ and $m\angle MNJ = (4x - 19)^\circ$, find the measure of $\angle KNM$.



$$\begin{aligned} 8x - 5 + 4x - 19 &= 180 \\ 12x - 24 &= 180 \\ 12x &= 204 \\ x &= 17 \end{aligned}$$

$$m\angle KNM = 8(17) - 5 = 131^\circ$$

13. If $m\angle DEG = (5x - 4)^\circ$, $m\angle GEF = (7x - 8)^\circ$, $m\angle DEH = (9y + 5)^\circ$, find the values of x and y .



$$\begin{aligned} 5x - 4 + 7x - 8 &= 180 \\ 12x - 12 &= 180 \\ 12x &= 192 \\ \boxed{x = 16} \end{aligned}$$

$$\begin{aligned} 7(16) - 8 &= 9y + 5 \\ 104 &= 9y + 5 \\ 99 &= 9y \\ \boxed{y = 11} \end{aligned}$$

14. $\angle R$ and $\angle S$ are complementary angles. If $m\angle R = (12x - 3)^\circ$ and $m\angle S = (7x - 2)^\circ$, find $m\angle R$.

$$\begin{aligned} 12x - 3 + 7x - 2 &= 90 \\ 19x - 5 &= 90 \\ 19x &= 95 \\ x &= 5 \end{aligned}$$

$$m\angle R: 12(5) - 3 = \boxed{57^\circ}$$

15. $\angle P$ and $\angle Q$ are supplementary angles. If $m\angle P = (4x + 1)^\circ$ and $m\angle Q = (9x - 3)^\circ$, find $m\angle Q$.

$$\begin{aligned} 4x + 1 + 9x - 3 &= 180 \\ 13x - 2 &= 180 \\ 13x &= 182 \\ x &= 14 \end{aligned}$$

$$m\angle Q: 9(14) - 3 = \boxed{123^\circ}$$

16. $\angle 1$ and $\angle 2$ form a linear pair. The measure of $\angle 2$ is six more than twice the measure of $\angle 1$. Find $m\angle 2$.

$$\begin{aligned} m\angle 1 &= x & 2x + 6 + x &= 180 \\ m\angle 2 &= 2x + 6 & 3x &= 174 \\ & & x &= 58 \end{aligned}$$

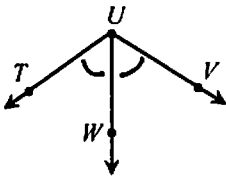
$$m\angle 2: 2(58) + 6 = \boxed{122^\circ}$$

17. $\angle J$ and $\angle K$ are complementary angles. The measure of $\angle J$ is 18 less than the measure of $\angle K$. Find the measure of each angle.

$$\begin{aligned} m\angle K &= x & x + x - 18 &= 90 \\ m\angle J &= x - 18 & 2x &= 108 \\ & & x &= 54 \end{aligned}$$

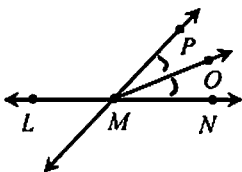
$$\begin{aligned} m\angle K &= 54^\circ \\ m\angle J &= 36^\circ \end{aligned}$$

18. If \overline{UW} bisects $\angle TUV$, $m\angle TUW = (13x - 5)^\circ$ and $m\angle WUV = (7x + 31)^\circ$, find the value of x .



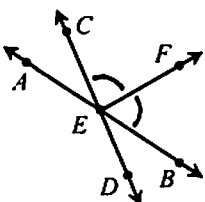
$$\begin{aligned} 13x - 5 &= 7x + 31 \\ 6x &= 36 \\ \boxed{x = 6} \end{aligned}$$

19. If \overline{MO} bisects $\angle PMN$, $m\angle PMN = 74^\circ$ and $m\angle OMN = (2x + 7)^\circ$, find the value of x .



$$\begin{aligned} 2x + 7 &= 37 \\ 2x &= 30 \\ \boxed{x = 15} \end{aligned}$$

20. If \overline{EF} bisects $\angle CEB$, $m\angle CEF = (7x + 21)^\circ$ and $m\angle FEB = (10x - 3)^\circ$, find the measure of $\angle DEB$.



$$\begin{aligned} 7x + 21 &= 10x - 3 \\ 24 &= 3x \\ x &= 8 \end{aligned}$$

$$m\angle CEF = 7(8) + 21 = 77$$

$$m\angle DEB = 180 - 2(77) = \boxed{26^\circ}$$