

Name: _____

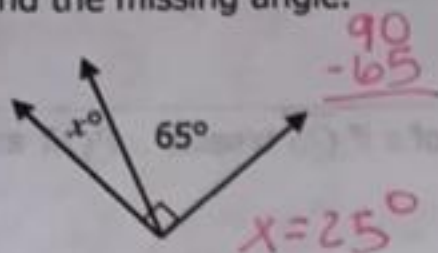
Unit 1: Geometry Basics

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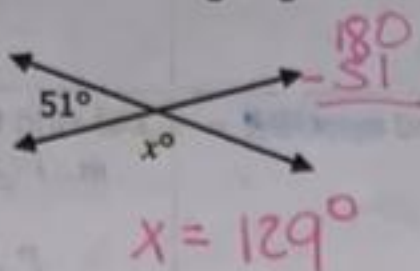
Homework 3: Angle Relationships

**** This is a 2-page document! ****

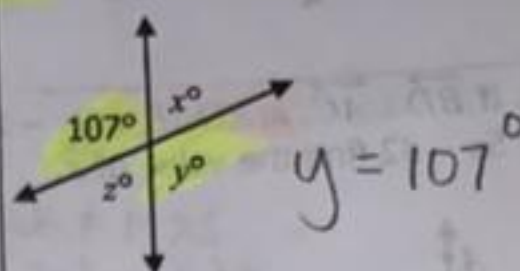
1. Find the missing angle.



2. Find the missing angle.



3. Find the missing angles.



4. If the measure of an angle is 13° , find the measure of its supplement.

$$180 - 13 = 167^\circ$$

5. If the measure of an angle is 38° , find the measure of its complement.

$$90 - 38 = 52^\circ$$

6. $\angle 1$ and $\angle 2$ form a linear pair. If $m\angle 1 = 5x + 9$ and $m\angle 2 = 3x + 11$, find the measures of both angles.

$$\begin{array}{r} 5x + 9 = 3x + 11 \\ -3x \quad -3x \\ \hline 2x + 9 = 11 \\ -9 \quad -9 \\ \hline 2x = 2 \\ \frac{2x}{2} = \frac{2}{2} \\ x = 1 \end{array}$$

$$\begin{array}{l} m\angle 1 = 5(1) + 9 \\ m\angle 1 = 5 + 9 \\ \boxed{m\angle 1 = 14^\circ} \end{array}$$

$$\begin{array}{l} m\angle 2 = 3(1) + 11 \\ m\angle 2 = 3 + 11 \\ \boxed{m\angle 2 = 14^\circ} \end{array}$$

7. $\angle 1$ and $\angle 2$ are vertical angles. If $m\angle 1 = 17x + 1$ and $m\angle 2 = 20x - 14$, find $m\angle 2$.

$$\begin{array}{r} 17x + 1 = 20x - 14 \\ -17x \quad -17x \\ \hline 1 = 3x - 14 \\ +14 \quad +14 \\ \hline 15 = 3x \\ \frac{15}{3} = \frac{3x}{3} \\ x = 5 \end{array}$$

$$\begin{array}{l} m\angle 2 = 20x - 14 \\ m\angle 2 = 20(5) - 14 \\ m\angle 2 = 100 - 14 \\ \boxed{m\angle 2 = 86^\circ} \end{array}$$

8. $\angle K$ and $\angle L$ are complementary angles. If $m\angle K = 3x + 3$ and $m\angle L = 10x - 4$, find the measures of both angles.

$$\begin{array}{r} 3x + 3 + 10x - 4 = 90 \\ 13x - 1 = 90 \\ +1 \quad +1 \\ \hline 13x = 91 \\ \frac{13x}{13} = \frac{91}{13} \\ x = 7 \end{array}$$

$$\begin{array}{l} m\angle K = 3(7) + 3 \\ m\angle K = 21 + 3 \\ \boxed{m\angle K = 24^\circ} \end{array}$$

$$\begin{array}{l} m\angle L = 10(7) - 4 \\ m\angle L = 70 - 4 \\ \boxed{m\angle L = 66^\circ} \end{array}$$

9. The $m\angle P$ is three less than twice the measure of $\angle Q$. If $\angle P$ and $\angle Q$ are supplementary angles,