

Find the missing Angles

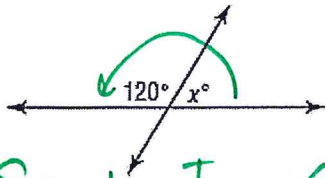
Name _____

Date: _____

Key

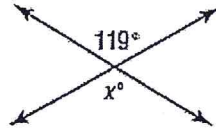
Write if angles are complementary, supplementary, or adjacent. Find the value of x in each figure.

1.



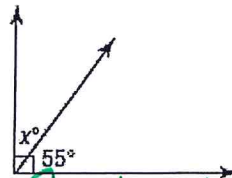
Supplementary, $x = 60^\circ$

2.



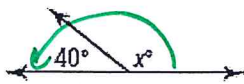
Vertical, $x = 119^\circ$

3.



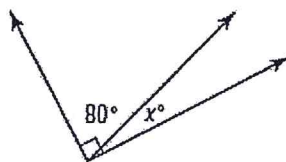
Complementary, $x = 35^\circ$

4.



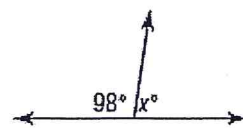
Supplementary, $x = 140^\circ$

5.



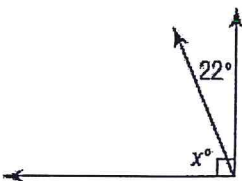
Complementary, $x = 10^\circ$

6.



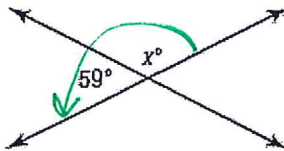
Supplementary, $x = 82^\circ$

7.



Complementary, $x = 68^\circ$

8.



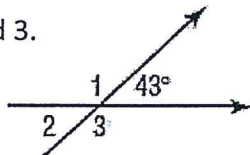
Supplementary, $x = 121^\circ$

9.



Supplementary, $x = 174^\circ$

10. Find the measure of angles 1, 2, and 3.
Explain your reasoning.

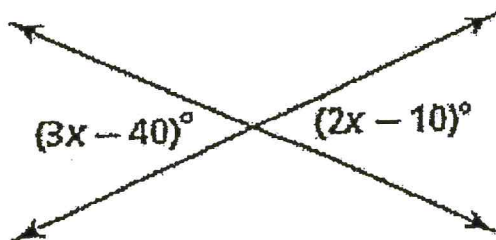


✓ $m\angle 2 = 43^\circ$
(vertical angle)

✓ $m\angle 1 = 180^\circ - 43^\circ = 137^\circ$ Supplementary angle

✓ $m\angle 3 = 137^\circ$ Vertical angle.

For each diagram, find the value of the variable and the measure of each angle. Be sure to state the relationship between the angles to justify setting up your equation.



Equation

$$\begin{array}{r} 3x - 40 = 2x - 10 \\ -2x \quad -2x \\ \hline x - 40 = -10 \\ +40 \quad +40 \\ \hline \end{array}$$

$$\begin{array}{r} x - 40 = -10 \\ +40 \quad +40 \\ \hline \end{array}$$

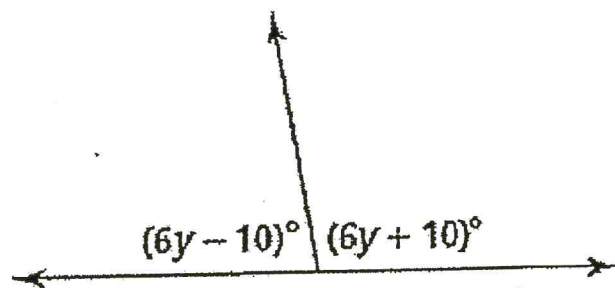
$$\boxed{x = 30}$$

Justification

Vertical angle
minus 2x

Add 40

Answer



Equation

$$6y - 10 + 6y + 10 = 180$$

$$\begin{array}{r} 12y = 180 \\ \underline{12} \quad \underline{12} \end{array}$$

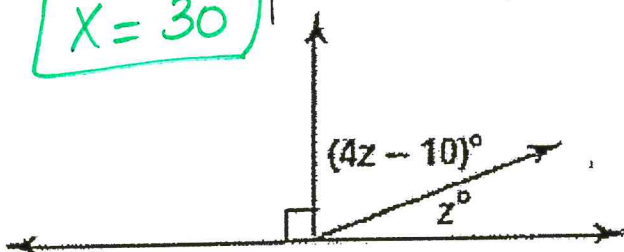
$$\boxed{y = 15}$$

Justification

Supplementary angle

C. L. T
divide by 12

Answer



Equation

$$4z - 10 + z = 90$$

$$\begin{array}{r} 5z - 10 = 90 \\ +10 \quad +10 \\ \hline \end{array}$$

$$\begin{array}{r} 5z = 100 \\ \underline{5} \quad \underline{5} \end{array}$$

$$\boxed{z = 20}$$

Justification

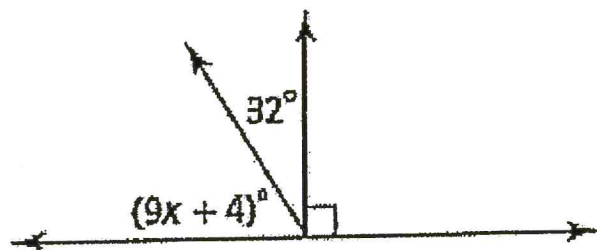
Complementary angle

C. L. T

Add 10

divide by 5

Answer.



Equation

$$9x + 4 + 32 = 90$$

$$\begin{array}{r} 9x + 36 = 90 \\ -36 \quad -36 \\ \hline \end{array}$$

$$\begin{array}{r} 9x = 54 \\ \underline{9} \quad \underline{9} \end{array}$$

$$\boxed{x = 6}$$

Justification

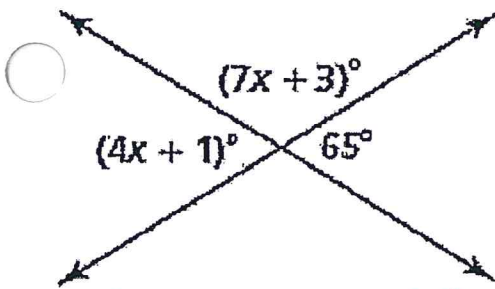
Complementary Angle

C. L. T

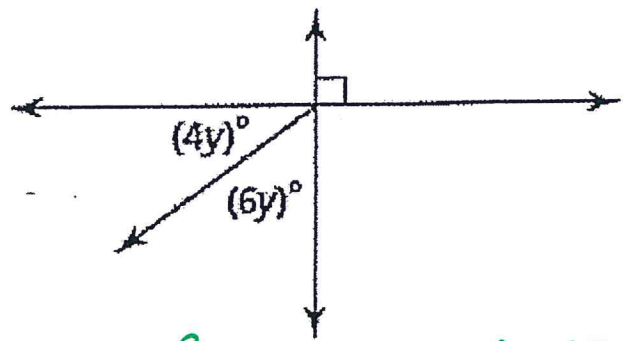
minus 36

divide by 9

Answer



Equation	Justification
$4x + 1 = 65$	Vertical angles
$-1 \quad -1$	minus 1
$4x = 64$	
$\frac{4}{4} \quad \frac{64}{4}$	divide by 4
$x = 16$	Answer



Equation	Justification
$4y + 6y = 90$	Complementary Angles
$\frac{10y}{10} = \frac{90}{10}$	divide by 10
$y = 9$	Answer

Be sure to state all 5 relationships and solve for all 5 variables!

use vertical angles
 ✓ Supplementary angles
 ✓ Complementary angles

