

4-26-18

Aim: SWBAT find missing angle measurements algebraically.

HW: "Algebra and Angles" WS

Quiz Monday (Angle Relationships)



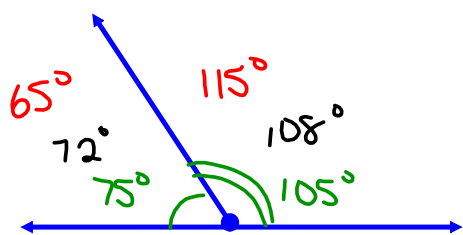
Do Now:

- Name the line two ways
- Name a ray going to the left and another ray going to the right
- Name two line segments

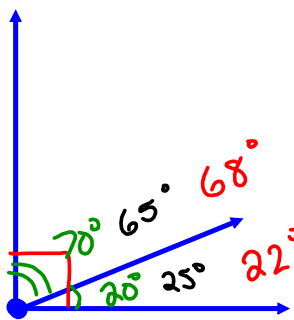
 \overleftrightarrow{AB} \overleftrightarrow{AD}

left \overrightarrow{BA} \overrightarrow{CA} right \overrightarrow{AB} \overrightarrow{BC}

 \overline{AB} \overline{AD}



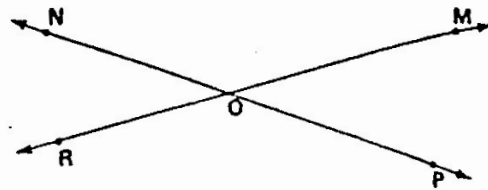
Supplementary
 180°



Complementary
 90°

A. Name the adjacent angles in the figure at the right.

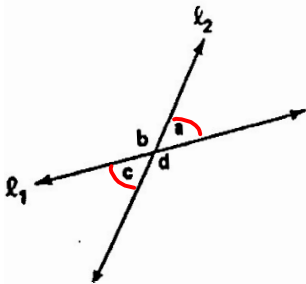
- $\angle \underline{NOM}$ and $\angle \underline{MOP}$ are adjacent.
- $\angle \underline{MOP}$ and $\angle \underline{POR}$ are adjacent.
- $\angle \underline{POR}$ and $\angle \underline{RON}$ are adjacent.
- $\angle \underline{RON}$ and $\angle \underline{NOM}$ are adjacent.



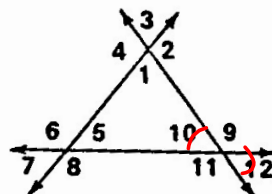
B. Find the complement and the supplement for each given angle.

Given angle	Complementary angle <i>sum to 90°</i>	Supplementary angle <i>sum 180°</i>	Given angle	Complementary angle <i>9</i>	Supplementary angle <i>8</i>
$\angle AOB = 30^\circ$	60°	150°	$\angle BOC = 47^\circ$	43°	133°
$\angle TOP = 18^\circ$	72°	162°	$\angle OXT = 13^\circ$	77°	167°
$\angle ABC = 89^\circ$	1°	91°	$\angle AVF = 73^\circ$	17°	107°
$\angle PRS = 63^\circ$	27°	117°	$\angle SPL = 35^\circ$	55°	145°
$\angle SOM = 80^\circ$	10°	100°	$\angle MNO = 84^\circ$	6°	96°
$\angle STN = 57^\circ$	33°	123°	$\angle TNR = 55^\circ$	35°	125°

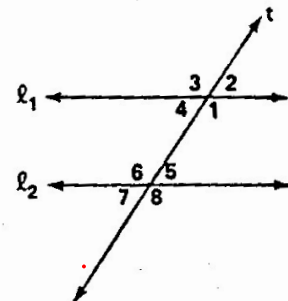
List all the vertical angles in each figure.



- $\angle \underline{a}$ and $\angle \underline{c}$
- $\angle \underline{b}$ and $\angle \underline{d}$

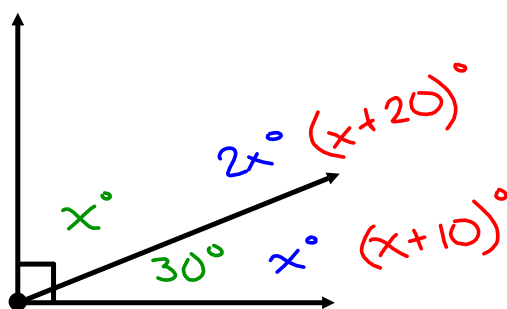


- $\angle \underline{1}$ and $\angle \underline{3}$
- $\angle \underline{2}$ and $\angle \underline{4}$
- $\angle \underline{5}$ and $\angle \underline{7}$
- $\angle \underline{6}$ and $\angle \underline{8}$
- $\angle \underline{9}$ and $\angle \underline{11}$
- $\angle \underline{10}$ and $\angle \underline{12}$



- $\angle \underline{1}$ and $\angle \underline{3}$
- $\angle \underline{2}$ and $\angle \underline{4}$
- $\angle \underline{5}$ and $\angle \underline{7}$
- $\angle \underline{6}$ and $\angle \underline{8}$

Complementary Angles are angles whose sum is 90° .



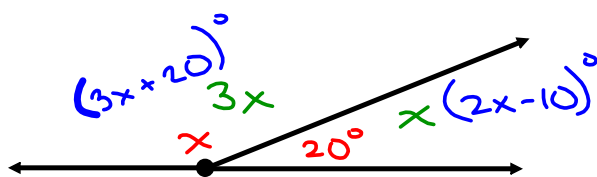
Solve algebraically.

$$\begin{array}{r} x + 30 = 90 \\ - 30 \quad - 30 \\ \hline x = 60 \end{array}$$

$$\begin{array}{r} x + 2x = 90 \\ \frac{3x}{3} = \frac{90}{3} \\ x = 30 \\ 2x = 60 \end{array}$$

$$\begin{array}{r} (x+20) + (x+10) = 90 \\ 2x + 30 = 90 \\ - 30 \quad - 30 \\ \hline 2x = 60 \\ \frac{2x}{2} = \frac{60}{2} \\ x = 30 \\ x+20 = 50 \\ x+10 = 40 \end{array}$$

Supplementary Angles are angles whose sum is 180° .



Solve algebraically.

$$\begin{array}{r} x + 20 = 180 \\ -20 \quad -20 \\ \hline x = 160 \end{array}$$

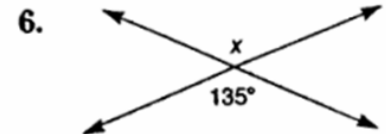
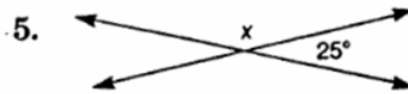
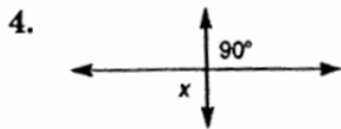
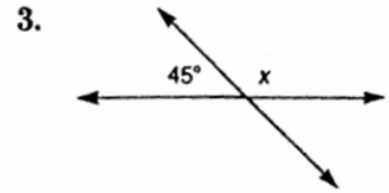
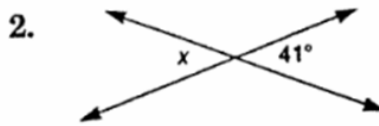
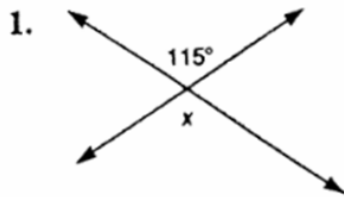
$$\begin{aligned} x + 3x &= 160 \\ 4x &= 160 \\ \frac{4x}{4} &= \frac{160}{4} \\ x &= 40 \\ 3x &= 120 \end{aligned}$$

$$\begin{aligned} (3x+20) + (2x-10) &= 180 \\ 5x+10 &= 180 \\ -10 \quad -10 \\ \hline 5x &= 170 \\ \frac{5x}{5} &= \frac{170}{5} \\ x &= 34 \end{aligned}$$

$$\begin{aligned} 3x+20 &= 122 \\ 2x-10 &= 58 \end{aligned}$$

Angle Relationships

Find the value of x in each figure.



Each of the following pairs of angles is either complementary or supplementary. Find the measure of each angle.

