

## 2-1 Angles

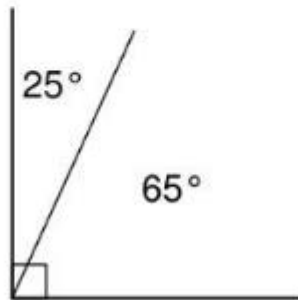
### 2-1 Types of Angles

LO: SWBAT classify angles.

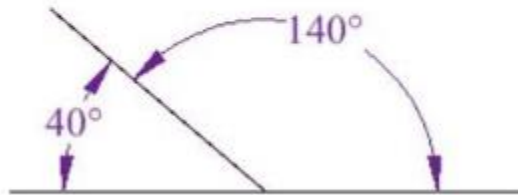
CO: SW classify angles based on their traits.

#### Definitions

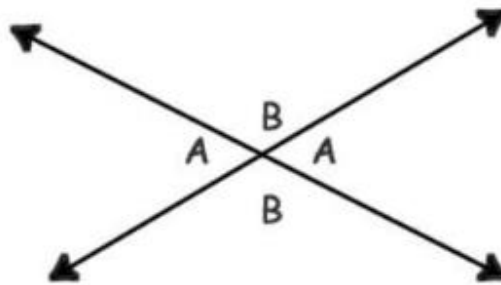
- Complementary angles – angles whose measures add up to  $90^\circ$ .



- Supplementary angles – angles whose measures add up to  $180^\circ$ .



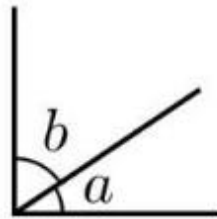
- Vertical angles – two opposite angles formed by two intersecting lines (lines that cross each other); vertical angles are congruent.



- Congruent – equal in every way you can measure (same size).

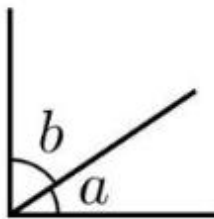
Examples:

1. Are these angles complementary if  $a = 50^\circ$  and  $b = 42^\circ$ ?



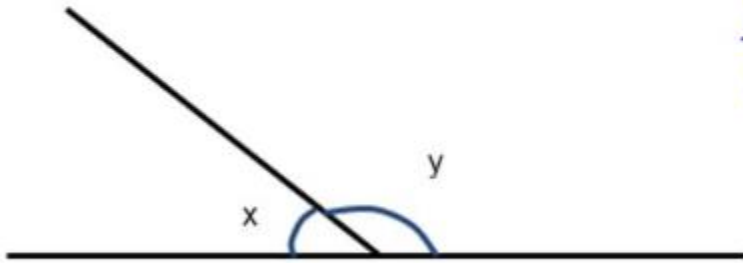
$$\begin{array}{r} 50 \\ + 42 \\ \hline 92 \\ \text{NO} \end{array}$$

2. Angle a & b are complementary. If angle b =  $36^\circ$ , what is the measure of angle a?



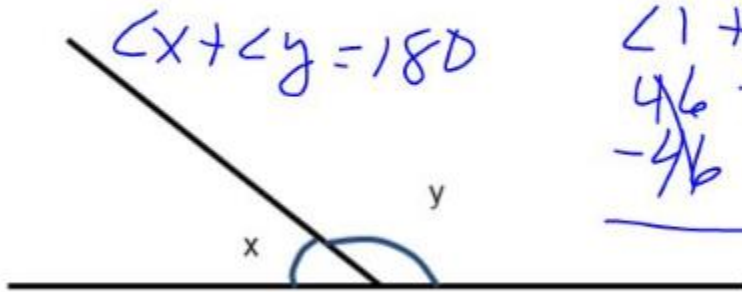
$$\begin{array}{r} \angle 1 + \angle 2 = 90 \\ 36 + x = 90 \\ -36 \quad \quad -36 \\ \hline x = 54 \end{array}$$

3. Are these angles supplementary if  $y = 153^\circ$  and  $x = 27^\circ$ ?



$$\begin{array}{r} 153 \\ + 27 \\ \hline 180 \\ \text{yes} \end{array}$$

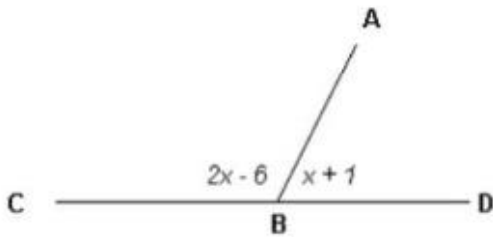
4. Angle  $x$  &  $y$  are supplementary. If angle  $x = 46^\circ$ , what is the measure of angle  $y$ ?



$$\angle x + \angle y = 180$$

$$\begin{array}{r} \angle 1 + \angle 2 = 180 \\ 46 + y = 180 \\ -46 \quad -46 \\ \hline y = 134 \end{array}$$

5. Find x.



$$\angle 1 + \angle 2 = 180$$

$$2x - 6 + x + 1 = 180$$

$$3x - 5 = 180$$

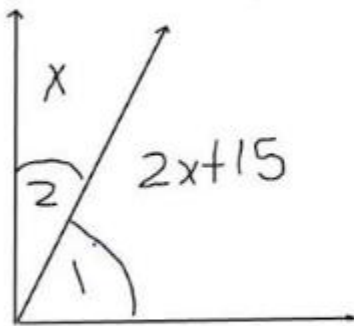
$$+5 \quad +5$$

$$3x = 185$$

$$\frac{3x}{3} = \frac{185}{3}$$

$$x = 61\frac{2}{3}$$

6. If angle 1 & 2 are complementary, find x.



$$\angle 1 + \angle 2 = 90$$

$$2x + 15 + x = 90$$

$$3x + 15 = 90$$

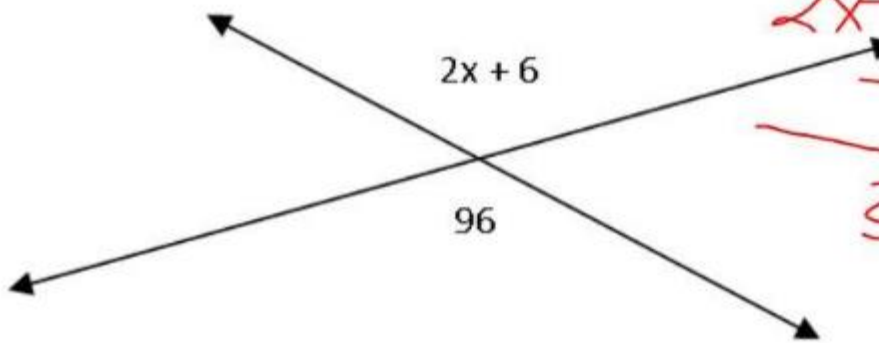
$$-15 \quad -15$$

$$3x = 75$$

$$\frac{3x}{3} = \frac{75}{3}$$

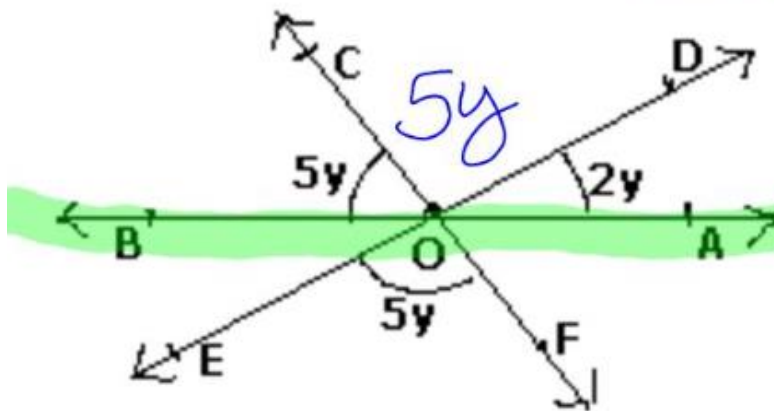
$$x = 25$$

7. Find x.



$$\begin{array}{r} \angle 1 \cong \angle 2 \\ 2x + 6 = 96 \\ -6 \quad -6 \\ \hline 2x = 90 \\ \frac{2x}{2} = \frac{90}{2} \\ x = 45 \end{array}$$

8. Find y.



$$\begin{array}{r} \angle 1 + \angle 2 + \angle 3 = 180 \\ 5y + 5y + 2y = 180 \\ 12y = 180 \\ \frac{12y}{12} = \frac{180}{12} \\ y = 15 \end{array}$$

HMK: In your math textbook, p 188 and 189 # 3  
- 24.

