

## 2-3 Complementary and Supplementary Angles

**Objective:** Find the measures of Complementary and Supplementary Angles

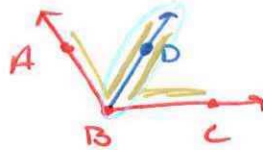
**Complementary Angles:** two angles that add up to  $90^\circ$   
Each angle is a complement of each other

$90^\circ \rightarrow$  Comp

**Supplementary Angles:** two angles that add up to  $180^\circ$   
Each angle is a supplement of each other

$180^\circ \rightarrow$  Supp

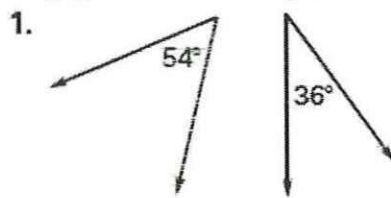
**Adjacent Angles:** Angles that share a side, a vertex and don't overlap



$\angle ABD$  is adjacent to  $\angle DBC$

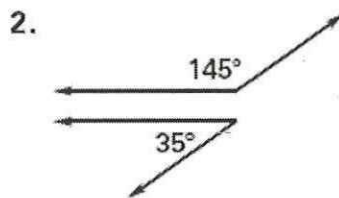
Examples:

Determine whether the angles are complementary, supplementary, or neither.



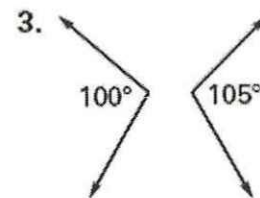
$54 + 36 = 90$

Complementary



$145 + 35 = 180$

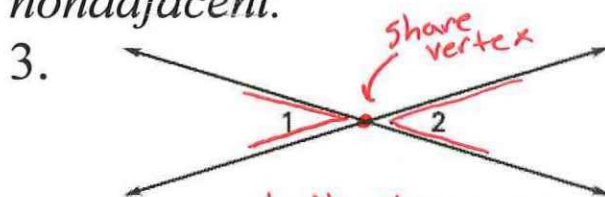
Supplementary



$100 + 105 = 205$

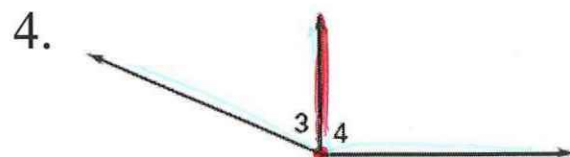
Neither

Determine whether the numbered angles are adjacent or nonadjacent.



don't share a side

non adjacent



- Share a vertex  
- Share a side

adjacent

**Theorem:** true statement that has been proven

**Example:**

5.  $\angle A$  is a complement of  $\angle B$ , and the  $m\angle A = 11^\circ$ . Find  $m\angle B$

$$\angle A + \angle B = 90^\circ$$

$$\begin{array}{r} 11 \\ -11 \\ \hline \end{array} + \angle B = 90^\circ \quad \begin{array}{r} -11 \\ -11 \\ \hline \end{array}$$

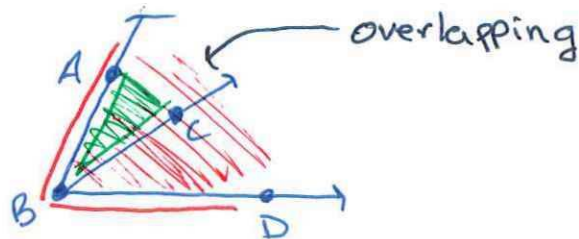
$$\boxed{\angle B = 79^\circ}$$

6.  $\angle M$  is a supplement of  $\angle S$ , and the  $m\angle S$  is  $122^\circ$ . Find  $m\angle M$

$$\angle M + \angle S = 180$$

$$\begin{array}{r} \angle M + 122 \\ -122 \\ \hline \end{array} = 180 \quad \begin{array}{r} -122 \\ -122 \\ \hline \end{array}$$

$$\boxed{\angle M = 58^\circ}$$



Is  $\angle ABD$  adjacent to  $\angle ABC$ ?

- share vertex (B)

- share side ( $\overrightarrow{AB}$ )

- they are overlapping

non-adjacent because they overlap