

# Notes: ANGLES

**Content Objective:** *I will be able to name (using correction notation) and classify angles by their measures.*

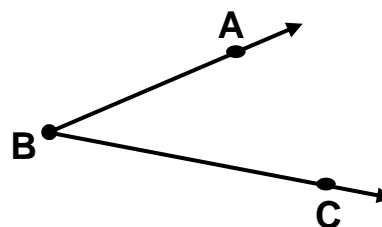
TERM	DESCRIPTION	EXAMPLE	HOW TO NAME IT
<b>RAY</b>	An object consisting of one _____ and continues _____ in one direction.		
<b>ANGLE</b>	An object consisting of two _____ (called sides) with a common _____ (called a vertex).		

**EXAMPLE 1:** *Name each of the following:*

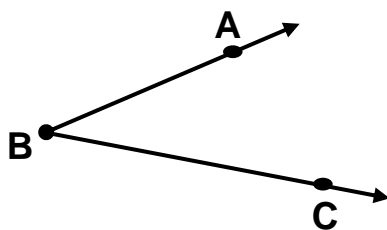
Sides: \_\_\_\_\_

Vertex: \_\_\_\_\_

Angle: \_\_\_\_\_



**CONSTRUCTION:** Copy  $\angle ABC$  and bisect it.



**EXAMPLE 2:**

a. How does the diagram in Example 1 differ from the diagram shown below?

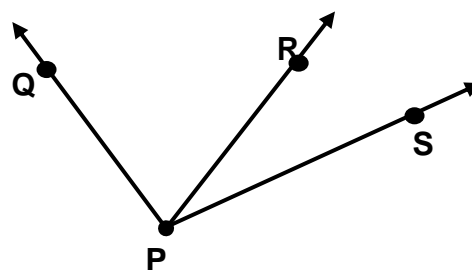
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Name a point in the interior of  $\angle QPS$ . \_\_\_\_\_

c. Name a point in the exterior of  $\angle QPR$ . \_\_\_\_\_



In item d. below, you would read " $m\angle QPR$ " as "the measure of angle QPR".

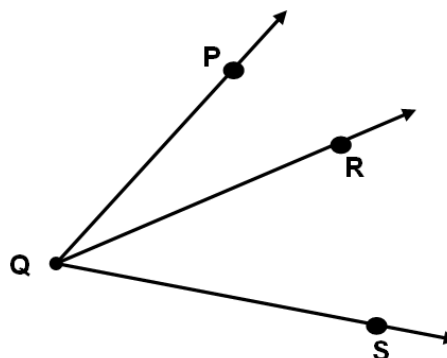
- d. If the  $m\angle QPR = 68^\circ$  and  $m\angle RPS = 25^\circ$ , what is the  $m\angle QPS$ ? \_\_\_\_\_ $^\circ$

### ANGLE ADDITION POSTULATE

*If  $R$  is in the interior of  $\angle PQS$ , then  $m\angle PQR + m\angle RQS = m\angle PQS$ .*

*If  $m\angle PQR + m\angle RQS = m\angle PQS$ , then  $R$  is in the interior of  $\angle PQS$ .*

**EXAMPLE 3:** If  $m\angle PQS = 77^\circ$  and  $m\angle PQR = 32^\circ$ , then find  $m\angle RQS$ .



$m\angle RQS =$  \_\_\_\_\_ $^\circ$

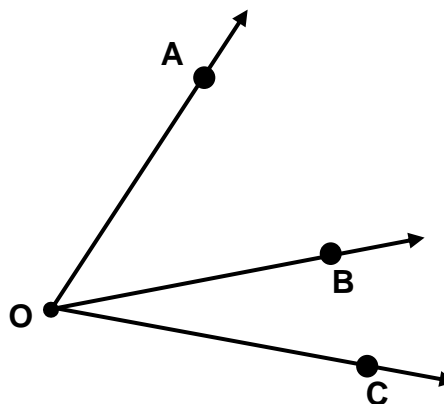
### EXAMPLE 4:

If  $m\angle AOC = 70^\circ$ ,  $m\angle AOB = (x + 10)^\circ$ , and  $m\angle BOC = x^\circ$ , find the following values:

$x =$  \_\_\_\_\_

$m\angle BOC =$  \_\_\_\_\_ $^\circ$

$m\angle AOB =$  \_\_\_\_\_ $^\circ$

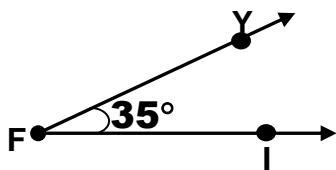


**CLASSIFICATIONS OF ANGLES**

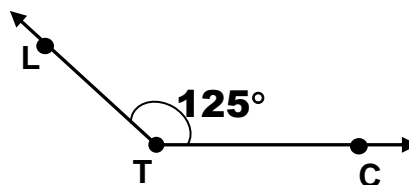
TERM	DESCRIPTION	EXAMPLE
	An angle that has a degree measure <b><i>less than <math>90^\circ</math></i></b> .	
	An angle has a degree measure <b><i>equal to <math>90^\circ</math></i></b> .	
	An angle has a degree measure <b><i>greater than <math>90^\circ</math> and less than <math>180^\circ</math></i></b> .	
	An angle has a degree measure <b><i>equal to <math>180^\circ</math></i></b> .	

**EXAMPLE 5:** For each of the following angles:

- Name it in two different ways
- Tell whether its measure is  $< 90^\circ$ ,  $> 90^\circ$ ,  $= 90^\circ$ , or  $= 180^\circ$
- Classify it.



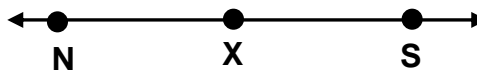
- ANGLE: \_\_\_\_\_ OR \_\_\_\_\_
- MEASURE: \_\_\_\_\_
- CLASSIFICATION: \_\_\_\_\_



- ANGLE: \_\_\_\_\_ OR \_\_\_\_\_
- MEASURE: \_\_\_\_\_
- CLASSIFICATION: \_\_\_\_\_



- ANGLE: \_\_\_\_\_ OR \_\_\_\_\_
- MEASURE: \_\_\_\_\_
- CLASSIFICATION: \_\_\_\_\_

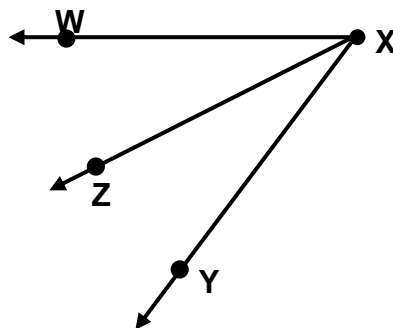


- ANGLE: \_\_\_\_\_ OR \_\_\_\_\_
- MEASURE: \_\_\_\_\_
- CLASSIFICATION: \_\_\_\_\_

TERM	DESCRIPTION	EXAMPLE
<b>ANGLE BISECTOR</b>	A ray, line, or line segment that divides an angle into two _____ angles.	

**EXAMPLE 6:**

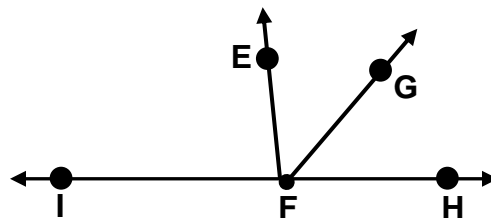
If  $\overrightarrow{XZ}$  is an angle bisector of  $\angle WXY$ , name the two congruent angles that it forms. Use congruent marks to show which angles in the diagram are congruent.



\_\_\_\_\_  $\cong$  \_\_\_\_\_

**EXAMPLE 7:**

$\overrightarrow{FG}$  bisects  $\angle EFH$ . Given the following expressions, set up and solve equations to determine the value of  $x$ .



a.  $m\angle EFG = (5x - 10)^\circ$

$m\angle GFH = (3x + 25)^\circ$

b.  $m\angle GFH = (3x + 20)^\circ$

$m\angle EFH = (4x + 80)^\circ$

$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_