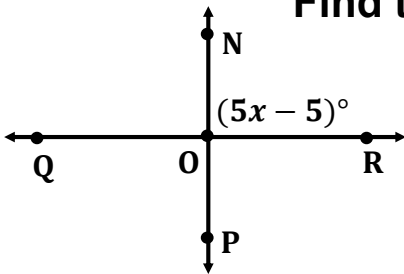


# NOTES 1.6 – SPECIAL ANGLE PAIRS

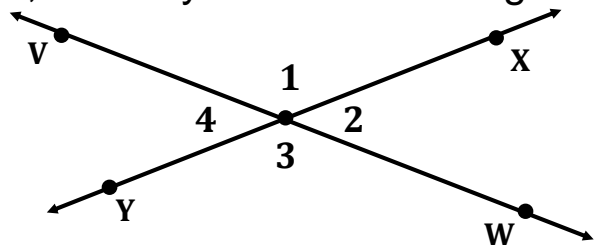
**Objective:** \_\_\_\_\_

PERPENDICULAR LINES:

**EXAMPLE 1:**  $\overleftrightarrow{NP}$  and  $\overleftrightarrow{QR}$  are perpendicular lines intersecting at  $O$ .  
Find the value of ' $x$ '.



Not all intersecting lines form right angles, but they do form four angles that have special relationships.



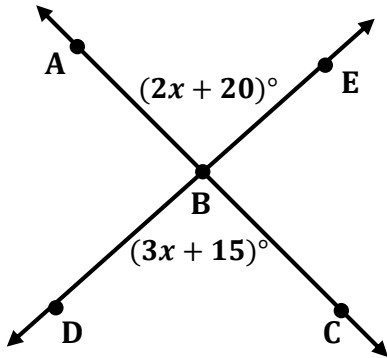
NAME	DESCRIPTION	EXAMPLES
Adjacent Angles		
Vertical Angles		
Linear Pair		

**VERTICAL ANGLES** are always **congruent**.

The sum of the measures of the angles in a **LINEAR PAIR** is  $180^\circ$ .

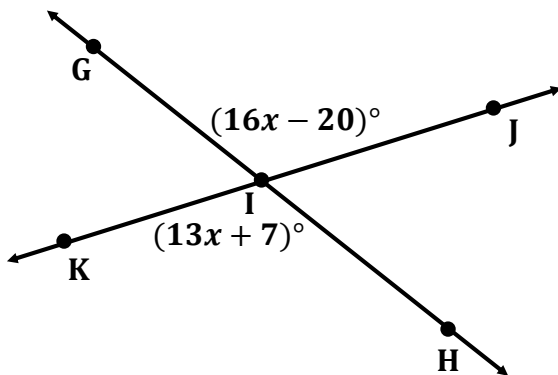
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**EXAMPLE 2:**  $\overleftrightarrow{AC}$  and  $\overleftrightarrow{DE}$  intersect at B. Find the value of 'x' and the measure of  $\angle EBC$ .



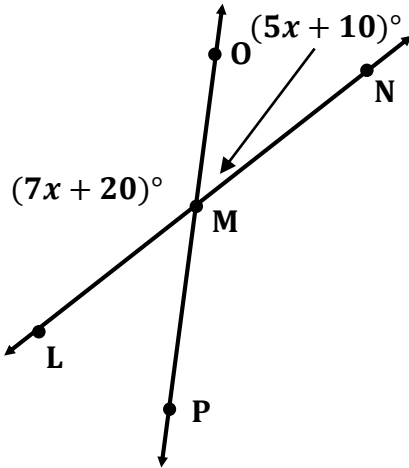
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**EXAMPLE 3:**  $\overleftrightarrow{GH}$  and  $\overleftrightarrow{JK}$  intersect at I. Find the value of 'x' and the measure of  $\angle JIH$ .



## Notes 1.6 (Continued)

**EXAMPLE 4:**  $\overleftrightarrow{LN}$  and  $\overleftrightarrow{OP}$  intersect at M. Find the value of 'x' and the measures of  $\angle LMO$  and  $\angle OMN$ .



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The **sum** of the measures of  $\angle LMO$  and  $\angle OMN$  in EXAMPLE 4 is  $180^\circ$ .

- Two angles whose measures have a sum of  $180^\circ$  are called **supplementary angles**.
- Similarly, when the **sum** of the measures of two angles is  $90^\circ$ , the angles are called **complementary angles**.

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**EXAMPLE 5:** If  $\angle 1$  and  $\angle 2$  are complements, with  $m\angle 1 = (2x + 20)^\circ$  and  $m\angle 2 = (3x + 15)^\circ$ , find the value of 'x'.

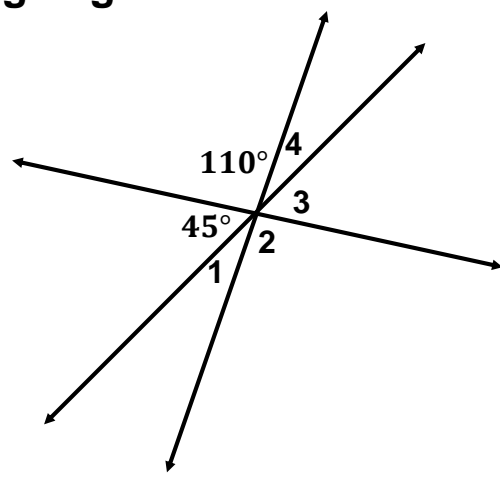
**EXAMPLE 6: Find all of the missing angles.**

$m\angle 1 =$  \_\_\_\_\_

$m\angle 2 =$  \_\_\_\_\_

$m\angle 3 =$  \_\_\_\_\_

$m\angle 4 =$  \_\_\_\_\_



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**EXAMPLE 7:  $\overrightarrow{CD} \perp \overrightarrow{AB}$ ,  $m\angle 1 = (6x - 3)^\circ$ ,  $m\angle 2 = (7x - 11)^\circ$ . Find the value of 'x'.**

