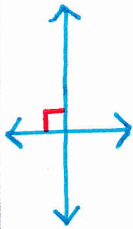


# 1.6 – SPECIAL ANGLE PAIRS

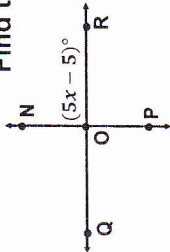
**Objective:** \_\_\_\_\_

PERPENDICULAR LINES:

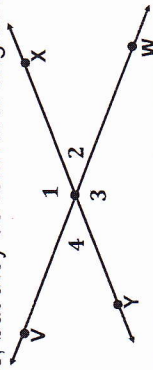


*Lines that intersect to form right angles*

EXAMPLE 1:  $\overline{NP}$  and  $\overline{QR}$  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.

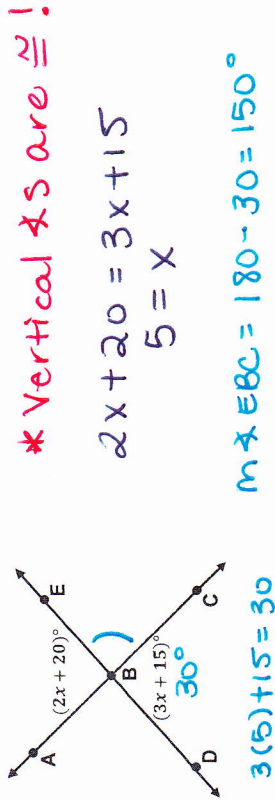


NAME	DESCRIPTION	EXAMPLES
Adjacent Angles	<i>2 angles with a common vertex &amp; a common side but no common interior points</i>	
Vertical Angles	<i>2 nonadjacent angles formed by 2 intersecting lines Always congruent</i>	
Linear Pair	<i>A pair of adjacent angles whose non-common sides are opposite rays Always add to 180 degrees</i>	

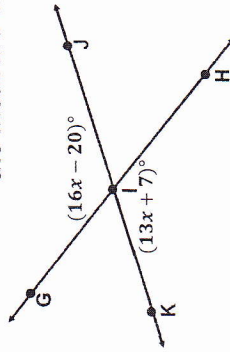
VERTICAL ANGLES are always congruent.

The sum of the measures of the angles in a LINEAR PAIR is 180 degrees.

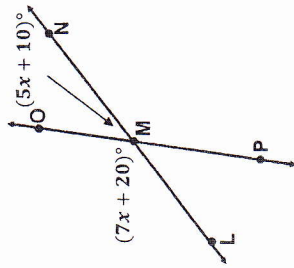
EXAMPLE 2:  $\overline{AC}$  and  $\overline{DE}$  intersect at B. Find the value of 'x' and the measure of angle EBC.



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



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



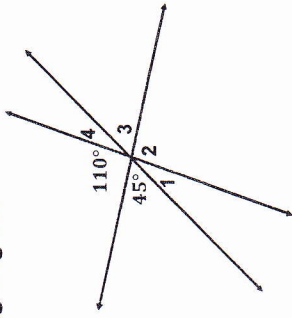
The **sum** of the measures of  $\angle LMO$  and  $\angle OMN$  in EXAMPLE 4 is  $180^\circ$ . Two angles whose measures have a sum of  $180^\circ$  are called supplementary angles.

Similarly, when the **sum** of the measures of two angles is  $90^\circ$ , the angles are called complementary angles.

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.

- $m\angle 1 =$  \_\_\_\_\_
- $m\angle 2 =$  \_\_\_\_\_
- $m\angle 3 =$  \_\_\_\_\_
- $m\angle 4 =$  \_\_\_\_\_



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

