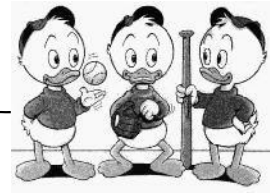


# PROVING STATEMENTS ABOUT ANGLES

NAME \_\_\_\_\_ PERIOD \_\_\_\_\_ Date \_\_\_\_\_



Sketch the following. Label all angles. Be sure to find the other angle measures.

1. Adjacent complementary angles where one angle measures  $40^\circ$ .

2. Nonadjacent supplementary angles where one angle measures  $40^\circ$ .

3. Vertical angles which measure  $40^\circ$ .

4. A linear pair where one angle measures  $150^\circ$ .

Use the diagram to determine whether the following are true or false.

5. If  $m\angle 4 = 20^\circ$ , then  $m\angle 3 = 70^\circ$ . \_\_\_\_\_

6. If  $m\angle 4 = 20^\circ$ , then  $m\angle 2 = 20^\circ$ . \_\_\_\_\_

7.  $m\angle 4 + m\angle 1 = m\angle 3 + m\angle 2$  \_\_\_\_\_

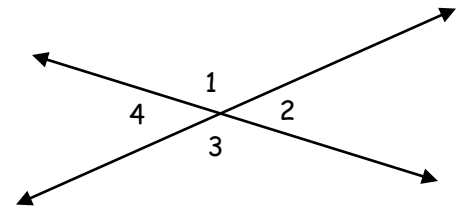
8.  $m\angle 4 + m\angle 2 = m\angle 3 + m\angle 1$  \_\_\_\_\_

9.  $\angle 1 \cong \angle 2$  \_\_\_\_\_

10.  $m\angle 1 + m\angle 4 = 180^\circ$  \_\_\_\_\_

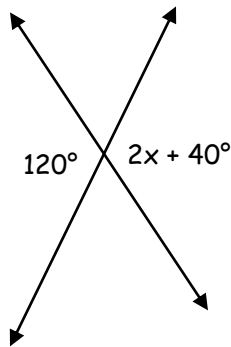
11.  $\angle 1$  and  $\angle 3$  are vertical angles. \_\_\_\_\_

12.  $\angle 3$  and  $\angle 2$  are supplementary angles. \_\_\_\_\_



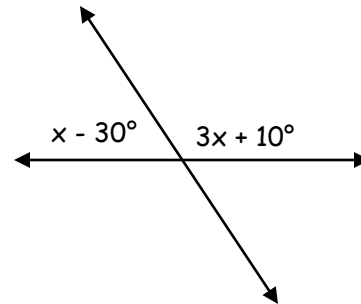
Solve the following for  $x$ .

13.  $x =$  \_\_\_\_\_



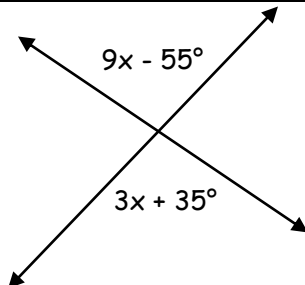
Angle Pair \_\_\_\_\_

14.  $x =$  \_\_\_\_\_



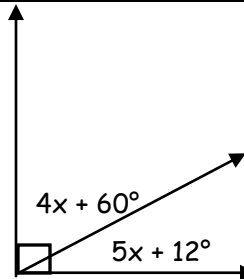
Angle Pair \_\_\_\_\_

15.  $x =$  \_\_\_\_\_



Angle Pair \_\_\_\_\_

16.  $x =$  \_\_\_\_\_



Angle Pair \_\_\_\_\_

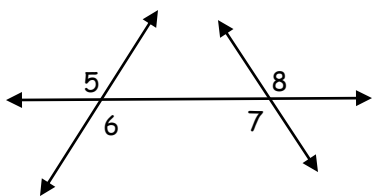
Make a conclusion given the statement. What theorem or property did you use to make the conclusion?

5. If  $m\angle 5 + m\angle 6 = 180^\circ$ ,  $m\angle 3 + m\angle 5 = 180^\circ$ , then \_\_\_\_\_. Thm/Prop \_\_\_\_\_
6. If  $\angle 1$  and  $\angle 3$  are vertical angles, then \_\_\_\_\_. Thm/Prop \_\_\_\_\_
7. If  $m\angle 7 + m\angle 3 = 90^\circ$ ,  $m\angle 7 + m\angle 2 = 90^\circ$ , then \_\_\_\_\_. Thm/Prop \_\_\_\_\_
8. If  $m\angle 1 = m\angle 2$ , and  $m\angle 2 = m\angle 3$ , then \_\_\_\_\_. Thm/Prop \_\_\_\_\_
9. If  $m\angle 1 + m\angle 2 = 180^\circ$  and  $m\angle 2 = m\angle 3$ , then \_\_\_\_\_. Thm/Prop \_\_\_\_\_

Complete the following proofs.

20. Given:  $\angle 6 \cong \angle 7$

Prove:  $\angle 5 \cong \angle 8$ .

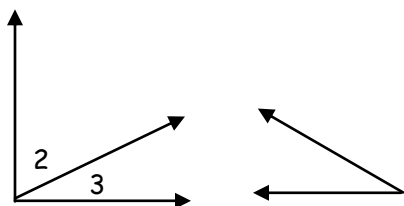


Statement	Reason
1. $\angle 6 \cong \angle 7$	1.
2. $\angle 7 \cong \angle 8$	2.
3.	3. Transitive Prop. of Congruence
4.	4. Vertical angles are congruent
5. $\angle 5 \cong \angle 8$	5.

21. Given:  $\angle 3$  and  $\angle 2$  are complementary

$$m\angle 1 + m\angle 2 = 90^\circ$$

Prove:  $\angle 3 \cong \angle 1$

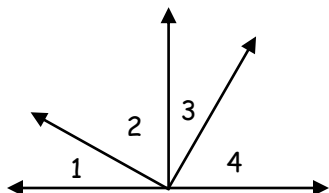


Statement	Reason
1.	1. Given
2. $m\angle 3 + m\angle 2 = 90^\circ$	2.
3. $m\angle 1 + m\angle 2 = 90^\circ$	3.
4. $\angle 3 \cong \angle 1$	1

19. Given:  $\angle 1$  &  $\angle 2$  are complementary.

$$\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$$

Prove:  $\angle 3$  &  $\angle 4$  are complimentary.



Statement	Reason
1. $\angle 1 \cong \angle 3$	1.
2. $m\angle 1 = m\angle 3$	2.
3. $\angle 2 \cong \angle 4$	3.
4. $m\angle 2 = m\angle 4$	4.
5. $\angle 1$ and $\angle 2$ are complementary	5.
6. $m\angle 1 + m\angle 2 = 90^\circ$	6.
7. $m\angle 3 + m\angle 2 = 90^\circ$	7.
8. $m\angle 3 + m\angle 4 = 90^\circ$	8.
9. $\angle 3$ and $\angle 4$ are complementary	9.