Pairs of Angles - Worksheet

1. Use figure 1 to answer the following questions:
   a) \( \angle 1 = \angle 2 \)
   These are called _______ angles.
   b) \( \angle 4 = \angle 1 \)
   These are called _______ angles.

![Figure 1](image)

2. Use figure 2 to answer the following questions:
   a) Given: \( \angle d = 30^\circ \)
      \( \angle a = _____^\circ \)
      \( \angle c = _____^\circ \)
      \( \angle b = _____^\circ \)
   b) Given: \( \angle c = 70^\circ \)
      \( \angle a = _____^\circ \)
      \( \angle b = _____^\circ \)
      \( \angle d = _____^\circ \)

![Figure 2](image)

3. Use figure 3 to answer the following questions:
   a) Given: \( \angle t = 45^\circ \)
      \( \angle p = _____^\circ \)
      \( \angle m = _____^\circ \)
      \( \angle n = _____^\circ \)
   b) Given: Diagram as shown.
      \( \angle n + \angle t = _____^\circ \)
      \( \angle m + \angle p = _____^\circ \)
      \( \angle p + \angle t = _____^\circ \)

![Figure 3](image)

4. Use figure 4 to answer the following questions:
   a) Given: \( \angle x = 75^\circ \)
      \( \angle z = _____^\circ \)
      \( \angle r = _____^\circ \)
      \( \angle w = _____^\circ \)
      \( \angle y = _____^\circ \)
   b) Given: Diagram as shown.
      \( \angle x + \angle y = _____^\circ \)
      \( \angle z = _____^\circ \)
      \( \angle y = \angle _____ + \angle _____ \)

![Figure 4](image)

5. Use figure 5 to answer the following questions and the given statements:
   Given: \( \angle a + \angle b = 90^\circ \)
   \( \angle b + \angle c = 90^\circ \)
   a) Given: \( \angle a = 50^\circ \)
      \( \angle b = _____^\circ \)
      \( \angle c = _____^\circ \)
   b) Given: \( \angle a = 45^\circ \)
      \( \angle b = _____^\circ \)
      \( \angle c = _____^\circ \)

![Figure 5](image)
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Answer the following questions.

1. Give an explanation for why you think a linear pair of angles is called "linear.

2. True or false: All pairs of supplementary angles are also linear pairs. Explain.

3. Complete: Adjacent angles are angles in the same plane that have a common __________ and __________ but no common ________.

4. Describe in your own words the difference between complementary and supplementary angles.

Find the measure of the complement and the supplement of an angle having the indicated measures.

5. 38
6. 63
7. 110
8. x

Refer to the figure at the right to name the following pairs of angles (questions 9 thru 14).

9. Obtuse vertical angles
10. Adjacent complementary angles
11. Congruent supplementary angles
12. Noncongruent supplementary angles
13. Adjacent angles that do not form a linear pair
14. Nonadjacent complementary angles

15. Suppose \( \angle A \) is a complement of \( \angle B \). Find the value of \( x \), \( m \angle A \), and \( m \angle B \) if \( m \angle A = 7x + 4 \) and \( m \angle B = 4x + 9 \).

16. Suppose \( \angle P \) is a supplement of \( \angle Q \). Find the value of \( x \), \( m \angle P \), and \( m \angle Q \) if \( m \angle P = 6x + 4 \) and \( m \angle Q = 10x \).