**G102-1:** Applying Properties of Complementary and Supplementary Angles

**Useful Vocabulary:**

**Picture**

1.

2.

3.

4.

5.

6.

7.

1.**Acute angle:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2.**Obtuse angle:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3.**Straight angle:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. **Linear Pair:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5.**Right Angle:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. **Complementary angles:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7.**Supplementary angles:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Complementary Angles:**

* Always add up to \_\_\_\_\_.
* Are most often \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or next to, each other, and

 make up a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 

**Supplementary Angles:**

* Always add up to \_\_\_\_\_\_\_.
* Are most often \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or next to each other, and form a linear pair.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is two angles that are adjacent, and supplementary.

 

**Examples:**

1. Given that two angles, ∡ABC and ∡DEF, are

 complementary, if m∡DEF is 60, what is the

 measure of ∡ABC?

2. Given that two angles, ∡LMN and ∡HOT, are

 supplementary, if m∡LMN is 53, what is the

 measure of ∡HOT?

3. Based on the following diagram of two adjacent angles that

 are complementary, find the value of x, and the measure of

 each angle.

 

4. Based on the following diagram of two adjacent angles that

 are supplementary, find the value of x, and the measure of

 each angle.



5. Two angles, ∡MAT, and ∡TOP, are supplementary angles. The m∡MAT = x+12, and

 the m∡TOP = 6x+7. Find the measures of ∡MAT, and ∡TOP. Explain how you

 reached your answer.

6. Two angles,∡MAJ and ∡JAG are complementary. If the m∡MAJ = 4x-12,

 m∡JAG= 30°, Find the value of x, and the measure of ∡MAJ. Explain how you

 reached your answer.

**Try on your own:**

Determine if the following statements are true or false. Explain your reasoning.

1. If ∡XYZ and ∡WIN are complementary, then ∡XYZ and ∡WIN are a linear pair.

2. If ∡MAG and ∡SLK are supplementary, then the sum of the measures of these

 two angles is 90.

**G102-1: Homework**

1. ∡A is a complement of ∡C. The m∡A=$47°$ . Find the m∡C.
2. ∡P is a supplement of ∡R. The m∡R=$36°$. Fine the m∡R.
3. In the diagram below ∡ABC, and ∡DBC are complementary angles. Find the m∡ABC, and the m∡DBC.

 

$$13x°$$

$$5x°$$

1. In the diagram below ∡CAS, and ∡SAR are supplementary angles. Find the m∡CAS, if the m∡SAR=$140°$.

 

$$S$$

$$x°$$

$$A$$

$$C$$

$$R$$

1. ∡1 and ∡2 are supplementary. Suppose that m∡1=$ 60°$ and m∡2=$(2x+20)°$. What is the value of x?
2. 5 b. 10 c. 50 d. 100

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