

# Assignment

## Write

Draw an example of each term. Provide an explanation when necessary.

1. supplementary angles
2. complementary angles
3. perpendicular lines
4. adjacent angles
5. linear pair
6. vertical angles

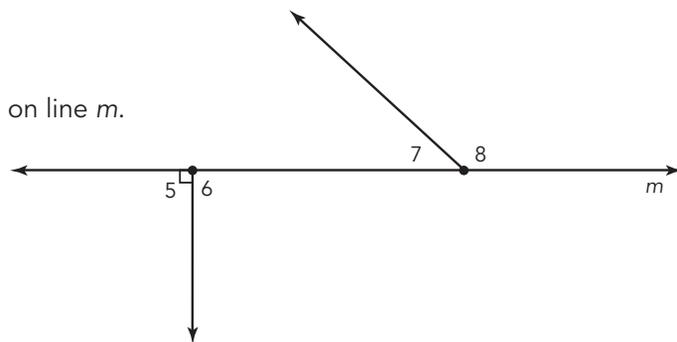
## Remember

Many geometric figures contain a mixture of special angle pairs. Understanding the relationships between special angle pairs will help you understand more complex geometric diagrams.

## Practice

1. Use the diagram to identify the specified angles on line  $m$ .

- a. All adjacent angles
- b. All linear pairs
- c. All vertical angles
- d. All right angles
- e. All supplementary angles



2. Draw the supplementary angles described. Label each angle with its measure.

- a. Draw a pair of supplementary adjacent angles. One of the angles should have a measure of  $85^\circ$ .
- b. Draw a pair of supplementary angles that are not adjacent but share a common vertex. One of the angles should have a measure of  $85^\circ$ .
- c. Draw a pair of supplementary angles that are not adjacent and do not share a common vertex. One of the angles should have a measure of  $85^\circ$ .

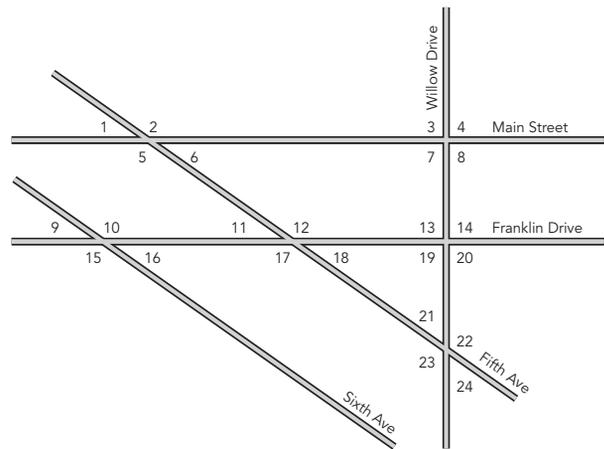
3. Draw the complementary angles described. Label each angle with its measure.

- a. Draw a pair of complementary adjacent angles. One of the angles should have a measure of  $62^\circ$ .
- b. Draw a pair of complementary angles that are not adjacent but share a common vertex. One of the angles should have a measure of  $62^\circ$ .
- c. Draw a pair of complementary angles that are not adjacent and do not share a common vertex. One of the angles should have a measure of  $62^\circ$ .

4. Draw the angle pairs described and answer each question. Label each angle with its measure.

- a. Draw a linear pair of angles. One of the angles should have a measure of  $123^\circ$ .
- b. Draw two angles with the same measures as those in part (a), such that they are not a linear pair.
- c. Explain the differences and similarities between linear pairs and supplementary angles.

5. Suppose each street in the map shown represents a line. Provide an example of each angle relationship.
- a. vertical angles
  - b. supplementary angles
  - c. linear pair
  - d. adjacent angles
  - e. vertical angles
  - f. congruent angles

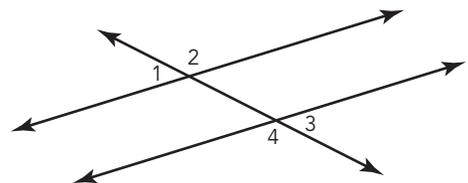


Calculate the measure of each unknown angle.

6. Angles  $C$  and  $D$  are complementary. The measure of angle  $D$  is 25 degrees greater than the measure of angle  $C$ . What is the measure of each angle?
7. If the supplement of an angle is 30 degrees more than the measure of the angle, what is the measure of the angle?
8. If the supplement of an angle is 12 degrees less than twice the measure of the angle, what is the measure of the angle?
9. If two angles form a linear pair and the measure of the first angle is one-fifth the measure of the second angle, what is the measure of each angle?
10. If two angles form a linear pair and the measure of the first angle is three times the measure of the second angle, what is the measure of each angle?

## Stretch

If  $\angle 1$  is the supplement of  $\angle 2$ ,  $\angle 3$  is the supplement of  $\angle 4$ , and  $\angle 1$  is congruent to  $\angle 3$ , what can you conclude about the measures of  $\angle 2$  and  $\angle 4$ ? Write this conclusion in a general form.



## Review

1. Construct a line segment that is twice the length of  $\overline{JK}$ .
2. Construct an angle that is twice the measure of  $\angle E$ .
3. Consider the population of integers from  $-10$  to  $10$ .
  - a. Select a sample of 6 numbers. Is this a random sample? Explain your reasoning.
  - b. How can you assign random numbers to select a sample using a random number table?
  - c. Use the random number table to choose 6 numbers from this population.
  - d. Use a different line of the random number table to choose 6 numbers from this population.
  - e. Compare the results from each sample. Do the results surprise you? Explain.
4. Estimate the likelihood of each event as  $0$ ,  $\frac{1}{2}$ , or  $1$ .
  - a. A dog greeting you with the words, "Good morning!"
  - b. Rolling a prime number on a 6-sided number cube.

