ALBERT

Name _____ Date _____

# Angle Relationships Worksheet

Grade 7 · Common Core 7.G.B.5

> Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

## Practice

Builds the skill step by step.

1. Two angles are complementary. One measures 35°. What does the other measure?

2. Two angles are supplementary. One measures 112°. What does the other measure?

3. Two lines cross. One angle measures 47°. What is the measure of the vertical angle across from it?

4. Which pair of angles is supplementary?

   A. 45° and 45°

   B. 90° and 100°

   C. 120° and 60°

   D. 30° and 60°

5. Two lines cross. One angle measures 47°. What is the measure of an angle next to it?

6. When two lines cross, the angles directly across from each other are called:

   A. adjacent angles

   B. vertical angles

   C. complementary angles

   D. supplementary angles

7. Three angles together form a straight line. Two of them measure 40° and 75°. What is the third?

8. Three angles meet at a point and fill the space around it. They measure 100°, 150° and x°. Find x.

9. An angle measures 18°. What is its complement?

10. Which pair of angles is complementary?

    A. 27° and 63°

    B. 27° and 153°

    C. 45° and 55°

    D. 90° and 90°

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## On Level

Grade-level practice.

1. Two complementary angles measure x° and 2x°. Find x.

2. Two supplementary angles measure (3x + 10)° and (2x − 5)°. Find x.

3. Two lines cross. One angle measures (4x)°, and the vertical angle across from it measures 72°. Find x.

4. Angles A and B are supplementary. Angle A is 4 times angle B. What is angle B?

   A. 45°

   B. 144°

   C. 36°

   D. 18°

5. Two adjacent angles form a right angle. They measure (x + 15)° and (2x)°. Find x.

6. An angle's supplement is 3 times the angle. What is the angle?

7. Two lines cross. One angle measures 128°. Going around the point from that angle, what are the other three angles?

8. Angles 1 and 2 are vertical angles. Angles 2 and 3 are supplementary. Angle 1 measures 65°. What is angle 3?

   A. 65°

   B. 115°

   C. 25°

   D. 155°

9. An angle's complement is 20° less than the angle. What is the angle?

10. A straight angle is split into three angles in the ratio 1 : 2 : 3. What is the largest of the three?

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## Challenge

Multi-step and word problems that stretch it.

1. Two lines cross. Two vertical angles measure $(5x - 20)°$ and $(3x + 16)°$. Find x and the measure of each angle.

2. Two lines cross. Two adjacent angles measure $(2x + 30)°$ and $(4x - 6)°$. Find both angles.

3. The complement of an angle is 40°. What is the supplement of the same angle?

   A. 130°

   B. 140°

   C. 50°

   D. 90°

4. Three angles fill the space around a point. They measure x°, $(x + 40)°$ and $(2x)°$. What is the largest angle?

5. The supplement of an angle is 6 times its complement. Find the angle.

6. Ray says two acute angles can never be supplementary. Is he right?

   A. No, 89° and 91° are both acute.

   B. No, any two angles can be supplementary.

   C. Yes, because acute angles are always complementary.

   D. Yes, because two angles under 90° add to less than 180°.

7. Angles A, B and C form a straight line. Angle A is 25° more than angle B, and angle C is twice angle B. Find angle C.

8. Two lines cross. One angle is 3 times the angle next to it. Going around the point, what are the four angles?

9. Angles P and Q are complementary. Angles Q and R are supplementary. Angle P measures 30°. What is angle R?

   A. 120°

   B. 150°

   C. 60°

   D. 30°

10. A ramp makes a 14° angle with the flat ground. A post stands straight up from the ground, at a right angle, and meets the top of the ramp. What angle does the ramp make with the post?