

## Lesson 5: Writing and Solving Linear Equations

### Classwork

#### Example 1

One angle is five less than three times the measure of another angle. Together they have a sum of  $143^\circ$ . What is the measure of each angle?

#### Example 2

Given a right triangle, find the measures of the angles if one angle is ten more than four times the other angle, and the third angle is the right angle.

**Exercises**

For each of the following problems, write an equation and solve.

1. A pair of congruent angles are described as follows: The measure of one angle is three more than twice a number, and the other angle's measure is 54.5 less than three times the number. Determine the size of the angles.
2. The measure of one angle is described as twelve more than four times a number. Its supplement is twice as large. Find the measure of each angle.
3. A triangle has angles described as follows: The measure of the first angle is four more than seven times a number, the measure of the second angle is four less than the first, and the measure of the third angle is twice as large as the first. What is the measure of each angle?

4. One angle measures nine more than six times a number. A sequence of rigid motions maps the angle onto another angle that is described as being thirty less than nine times the number. What is the measure of the angle?
5. A right triangle is described as having an angle of measure “six less than negative two times a number,” another angle measure that is “three less than negative one-fourth the number,” and a right angle. What are the measures of the angles?
6. One angle is one less than six times the measure of another. The two angles are complementary angles. Find the measure of each angle.

**Problem Set**

For each of the following problems, write an equation and solve.

1. The measure of one angle is thirteen less than five times the measure of another angle. The sum of the measures of the two angles is  $140^\circ$ . Determine the measure of each angles.
2. An angle measures seventeen more than three times a number. Its supplement is three more than seven times the number. What is the measure of each angle?
3. The angles of a triangle are described as follows:  $\angle A$  is the largest angle; its measure is twice the measure of  $\angle B$ . The measure of  $\angle C$  is 2 less than half the measure of  $\angle B$ . Find the measures of the three angles.
4. A pair of corresponding angles are described as follows: The measure of one angle is five less than seven times a number, and the measure of the other angle is eight more than seven times the number. Are the angles congruent? Why or why not?
5. The measure of one angle is eleven more than four times a number. Another angle is twice the first angle's measure. The sum of the measures of the angles is  $195^\circ$ . What is the measure of each angle?
6. Three angles are described as follows:  $\angle B$  is half the size of  $\angle A$ . The measure of  $\angle C$  is equal to one less than two times the measure of  $\angle B$ . The sum of  $\angle A$  and  $\angle B$  is  $114^\circ$ . Can the three angles form a triangle? Why or why not?