

## Solve Linear Equations Worksheets

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

1. A pair of congruent angles are described as follows: The degree measure of one angle is three more than twice a number, and the other angle's degree measure is 54.5 less than three times the number. Determine the measure of the angles in degrees.

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 in degrees.

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*Let  $x$  be the number. Then, the measure of one angle is  $3 + 2x$ , and the measure of the other angle is  $3x - 54.5$ . Because the angles are congruent, their measures are equal. Therefore,*

$$3 + 2x = 3x - 54.5$$

$$3 + 2x - 2x = 3x - 2x - 54.5$$

$$3 = x - 54.5$$

$$3 + 54.5 = x - 54.5 + 54.5$$

$$57.5 = x$$

*Replacing  $x$  with 57.5 in  $3 + 2x$  gives  $3 + 2(57.5) = 3 + 115 = 118$ ; therefore the measure of the angles is  $118^\circ$ .*

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 in degrees.

*Let  $x$  be the number. Then, the measure of one angle is  $4x + 12$ . The other angle is  $2(4x + 12) = 8x + 24$ . Since the angles are supplementary, their sum must be  $180^\circ$ .*

$$4x + 12 + 8x + 24 = 180$$

$$12x + 36 = 180$$

$$12x + 36 - 36 = 180 - 36$$

$$12x = 144$$

$$x = 12$$

*Replacing  $x$  with 12 in  $4x + 12$  gives  $4(12) + 12 = 48 + 12 = 60$ . Replacing  $x$  with 12 in  $2(4x + 12)$  gives  $2(4(12) + 12) = 2(48 + 12) = 2(60) = 120$ . Therefore, the measures of the angles are  $60^\circ$  and  $120^\circ$ .*