Solve Linear Equations Worksheets

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

1. 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 in degrees.

2. 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°. What is the measure of each angle in degrees?

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1. 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 in degrees.

Let x be the measure of $\angle B$. Then, the measure of $\angle A$ is $2x$, and the measure of $\angle C$ is $\frac{x}{2} - 2$. The sum of the measures of the angles must be $180°$.

$$x + 2x + \frac{x}{2} - 2 = 180$$

$$3x + \frac{x}{2} - 2 + 2 = 180 + 2$$

$$3x + \frac{x}{2} = 182$$

$$\frac{6x}{2} + \frac{x}{2} = 182$$

$$\frac{7x}{2} = 182$$

$$7x = 364$$

$$x = 52$$

Since x is the measure of $\angle B$, then $\angle B$ is $52°$. Replacing x with 52 in $2x$ gives $2(52) = 104$. Therefore, the measure of $\angle A$ is $104°$. Replacing x with 52 in $\frac{x}{2} - 2$ gives $\frac{52}{2} - 2 = 26 - 2 = 24$. Therefore, the measure of $\angle C$ is $24°$.

2. 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 $195°$. What is the measure of each angle in degrees?

Let x be the number. The measure of one angle can be represented with $4x + 11$, and the other angle's measure can be represented as $2(4x + 11) = 8x + 22$.

$$4x + 11 + 8x + 22 = 195$$

$$12x + 33 = 195$$

$$12x + 33 - 33 = 195 - 33$$

$$12x = 162$$

$$x = 13.5$$

Replacing x with 13.5 in $4x + 11$ gives $4(13.5) + 11 = 54 + 11 = 65$. Replacing x with 13.5 in $2(4x + 11)$ gives $2(4(13.5) + 11) = 2(54 + 11) = 2(65) = 130$. Therefore, the measures of the angles are $65°$ and $130°$.

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