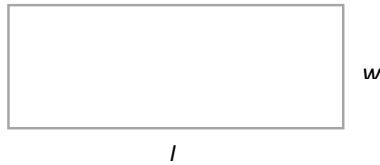## Answer to Question#39924 - Math - Algebra

Question: The length of a rectangle is twice its width. If its perimeter is 54 cm, find its length.

Solution. Let us begin by making a drawing.

Here we have denoted the length of the rectangle as l and its width as w.

Since we are given that the length of the rectangle is twice its width, we can write

$$l = 2w.$$

Now recall that the **perimeter** P of a rectangle is the sum of its side lengths:

$$P = 2(l + w).$$

Or, since $P = 54$ cm,

$$2(l + w) = 54.$$

In this equation, we can substitute $2w$ for l:

$$2(2w + w) = 54.$$

This is a simple equation for finding w:

$$2 \cdot 3w = 54,$$
$$6w = 54,$$
$$w = 9 \text{ (cm)}.$$

Now

$$l = 2w = 2 \cdot 9 = 18 \text{ (cm)}.$$

Answer. The length of the given rectangle is 18 cm.