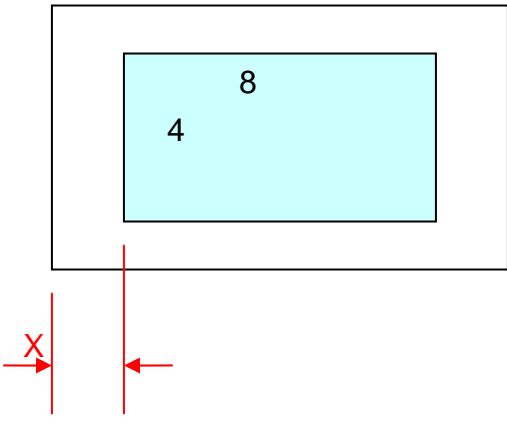


Instructions	Example
<p>1. Carefully read the problem, note what numerical data is given, and what is being asked for.</p>	<p>A rectangle 4 in. by 8 in. is completely bordered by a strip. The strip is the same width all the way around the rectangle. If the perimeter of the larger rectangle is twice that of the smaller rectangle, what is the width of the strip?</p>
<p>2. Make a sketch, drawing, or picture of the described situation, and put all the given data from the problem on the drawing. Look for what the problem's question is. In other words, what do they want to know? In this example, they want to know the width of the strip. Let x = that which they are asking for. Let x = the width of the strip.</p>	 <p>The diagram illustrates a small cyan rectangle with a length of 8 and a width of 4. This rectangle is centered within a larger white rectangle. The white strip between the two rectangles has a uniform width of x on all four sides. Red arrows and a vertical line indicate the width x of the strip on the left side.</p>
<p>Write down any numerical relationships that the problem gives you. In this case, perimeter of outside rectangle is twice that of smaller inside rectangle.</p>	<p>Length of small rectangle = 8 Width of small rectangle = 4</p> <p>Length of large = $8 + 2 \text{ times } x$ Width of large = $4 + 2 \text{ times } x$</p> <p>Perimeter of large is twice that of small</p>

3. Look for other information (numbers, formula, etc.) that you can use to relate all the items.

Perimeter of a rectangle is twice the sum of the length and width.

$$P = 2(L + W)$$

$$P \text{ of large} = \text{twice } P \text{ of small}$$

4. Write that formula using the givens and unknowns.

$$\begin{aligned} \text{Perimeter of small} &= 2(8 + 4) \\ \text{Perimeter of large} &= \text{twice that} \\ &= 2(2(8 + 4)) \\ &= 48 \end{aligned}$$

$$\begin{aligned} 2(\text{large } L + \text{large } W) &= 48 \\ 2((8 + 2x) + (4 + 2x)) &= 48 \end{aligned}$$

5. **Solve for x:**

$$(2)(8 + 2x) + (2)(4 + 2x) = 48$$

$$16 + 4x + 8 + 4x = 48$$

$$24 + 8x = 48$$

$$24 - 24 + 8x = 48 - 24$$

$$8x = 24$$

$$x = 3$$

Answer: The width of the strip is 3 in.