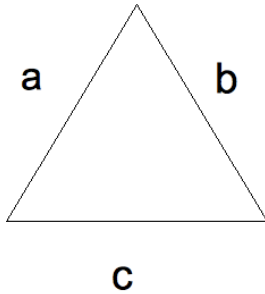


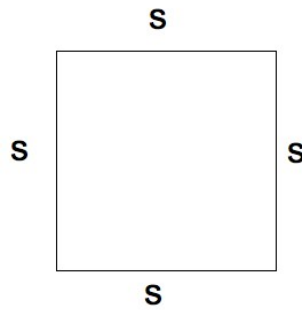
The **perimeter** of an object is the sum of the lengths of the outside edges of a shape.

Triangle



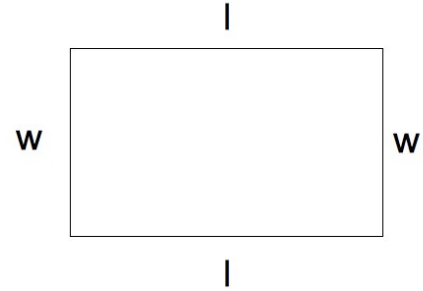
$$\text{Perimeter} = a + b + c$$

Square



$$\begin{aligned} \text{Perimeter} &= s + s + s + s \\ \text{Perimeter} &= 4s \end{aligned}$$

Rectangle



$$\begin{aligned} \text{Perimeter} &= l + w + l + w \\ \text{Perimeter} &= 2l + 2w \end{aligned}$$

Example: Find the length of a rectangular lot with a perimeter of 124 feet if the length is two more than twice the width.

Solution: When solving this problem you should use the problem solving process.

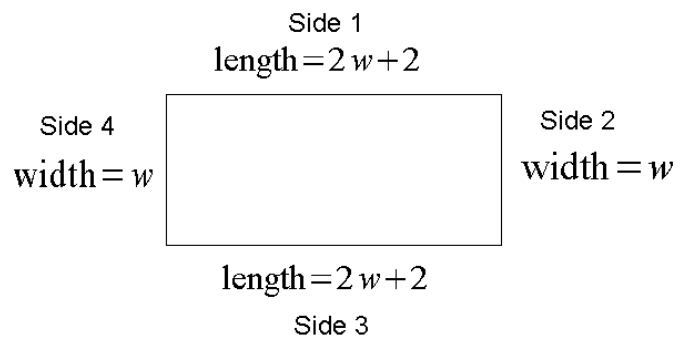
**Problem Solving Process**

1. Understand
  - read the problem several times
  - draw a picture
2. Translate
  - use variables to represent your unknown values
  - use the information in a problem to create an equation
3. Solve
  - solve the equation you created in step 2
4. Interpret
  - determine if your answer makes sense
  - make sure you are answering the question that was asked

Let the length of the rectangular lot be  $l$  and the width of the rectangular lot be  $w$ . The length is two more than twice the width.  $l = 2w + 2$

The perimeter is 124 feet. The perimeter is also the sum of the edges of the rectangle. The sum of the sides is equal to the perimeter.

$$\begin{aligned} 124 &= \text{side 1} + \text{side 2} + \text{side 3} + \text{side 4} \\ 124 &= (2w + 2) + (w) + (2w + 2) + (w) \\ 124 &= 2w + 2 + w + 2w + 2 + w \\ 124 &= 6w + 4 \end{aligned}$$



Once you translate the equation, solve for the variable.

$$\begin{aligned}124 &= 6w + 4 \\124 - 4 &= 6w + 4 - 4 \\120 &= 6w \\ \frac{120}{6} &= \frac{6w}{6} \\20 &= w\end{aligned}$$

The width of the rectangular lot is 20 feet. Although this is what the width equals the questions asks for the length. The length is two times the width plus one.  $l = 2w + 2 = 2(20) + 2 = 40 + 2 = 42$  The length of the rectangular lot is 42 feet.

Try it yourself!

Solve the following word problems.

1. Find the length of a rectangular lot with a perimeter of 50 feet if the length is five feet more than the width.
2. Find the length of a rectangular lot with a perimeter of 594 feet if the length is three feet less than twice the width.
3. Find the width of a rectangular lot with a perimeter of 890 yards if the width is five more than three times the length.



Answers

1. length = 15 *ft*
2. length = 197 *ft*
3. width = 335 *yds*
4. length = 210 *ft*
5. length = 44 *m*
6. length = 59 *in.*
7. width = 65 *ft*