

## Geometry Word Problems

### Perimeter

The type geometry problems we will focus on here is PERIMETER

For all these problems, the **first** step is to draw and label a picture. **Next**, write the equation based on the given information. **Third**, solve the equation, and last, answer the question.

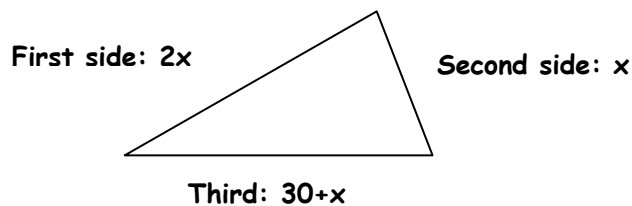
The perimeter of a closed region whose sides are line segments is always the sum of the lengths of the sides. Thus, the perimeter of a rectangle with length  $l$  and width  $w$  is  $l+l+w+w$  or  $2l+2w$ . In a perimeter word problem, the author will generally give you the perimeter and information about the shape (if it is a rectangle, triangle, etc...)

#### Example

The perimeter of a triangle is 130 cm. One side is twice as long as the second side. The third side is 30 cm longer than the second side. Find the length of the third side.

#### Solution

First draw a triangle and label the sides.



Next, write the equation:  $2x+x+(30+x)=130$

Then solve:  $x=25\text{cm}$

Finally, answer the question: The third side has length  $30+x=30+25=55\text{cm}$

- 1) The perimeter of a triangle is 72 cm. The first side of the triangle is 2 cm shorter than the second side. The third side is 5cm longer than the second side. Find the measure of the shortest side.
- a) 18cm                      b) 15cm                      c) 21cm                      d) 23 cm
- 2) The perimeter of a triangle is 17 inches. The first side is twice the second side. The third side is 3 inches less than the second side. Find the measure of the longest side.
- a) 5 inches                      b) 2 inches                      c) 10 inches                      d) 7 inches
- 3) The width of rectangle is 40% of the length. The perimeter is 140 ft. Find the width of the rectangle
- a) 15 ft                      b) 50 ft                      c) 20 ft                      d) 18 ft
- 4) The perimeter of a rectangle is 44 m. The length of the rectangle is 2 meters less than three times the width. Find the length of the rectangle.
- a) 5m                      b) 12 m                      c) 16 m                      d) 8m
- 5) The perimeter of a rectangle is 46 ft. The length of the rectangle is 5 ft less than three times the width. Find the length of the rectangle.
- a) 7ft                                      b) 12 ft                      c) 16 ft                      d) 14 ft
- 6) The length of a rectangle is 5 meters less than twice the width. The perimeter of the rectangle is 80 meters. Find the length of the rectangle.
- a) 15m                      b) 20m                      c) 25m                      d) 30m
- 7) The perimeter of a triangle is 39 ft. The first side is 3 ft more than twice the second side. The third side is 4 ft less than the second side. Find the measure of the longest side.
- a) 10ft                      b) 18ft                      c) 23ft                      d) 6ft
- 8) The perimeter of a rectangle is 70 ft. The width of the rectangle is 40% of the length. Find the width of the rectangle.
- a) 25ft                      b) 20ft                      c) 10ft                      d) 15ft