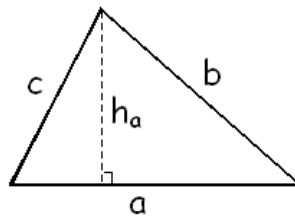
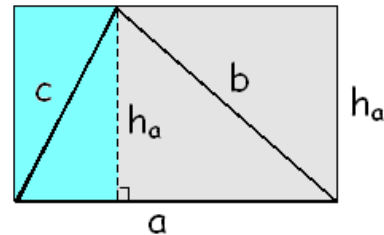


Let us now consider general triangles.

Theorem: The area of a general triangle with sides a , b , c and height h_a as shown on the picture below is $A = \frac{ah_a}{2}$.



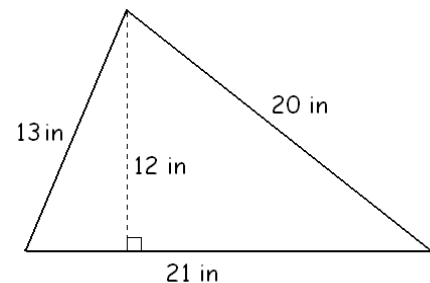
Proof: As before, we will use a previously obtained result. Since the general triangle no longer has a right angle, we create right angles by drawing in the altitude or height belonging to side a . Now we split our triangle into two right triangles, and each of them is half of a rectangle. Our triangle makes up for half of the rectangle, with sides a and h_a . Thus $A = \frac{ah_a}{2}$.



Example 1. Find the area of the triangle shown on the picture.

Solution: It is important to notice that we will not need all the information given. We apply the formula for the area.

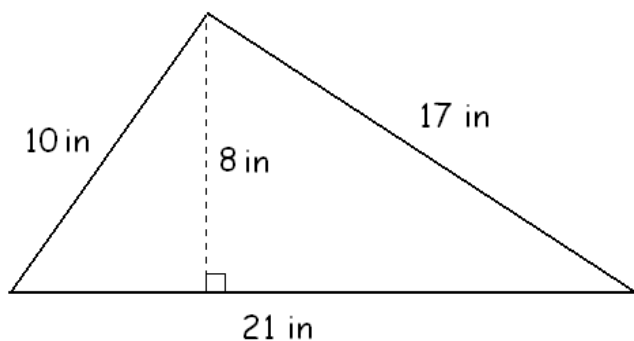
$$A = \frac{ah}{2} = \frac{21 \text{ in} (12 \text{ in})}{2} = \frac{252 \text{ in}^2}{2} = 126 \text{ in}^2$$



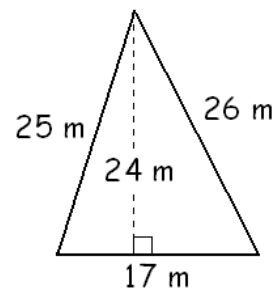
Practice Problems

Find the perimeter and area of each of the triangles shown on the picture. Include units in your computation and answer.

1.



2.





Answers

1. $P = 48 \text{ in}$ $A = 84 \text{ in}^2$ 2. $P = 68 \text{ m}$ $A = 204 \text{ m}^2$