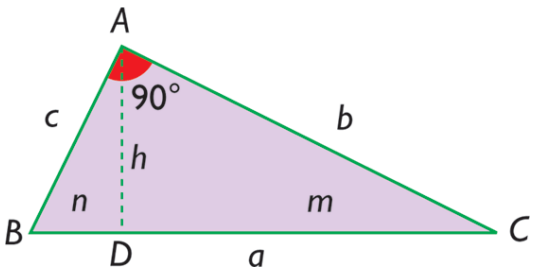
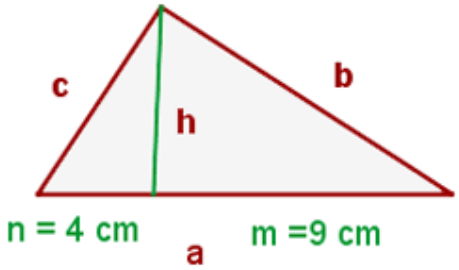
TEOREMA de la ALTURA (Height theorem)

In a triangle rectangle, the squared of the altitude on the hypotenuse is the product of the 2 segments that divide it.



$$\frac{m}{h} = \frac{h}{n} \qquad h^2 = m \cdot n$$

Example: Find the height in the following triangle:



$$\frac{9}{h} = \frac{h}{4} \qquad h^2 = 36$$

$$h = \sqrt{36} \qquad h = 6\ cm$$

Exercises:

1) The height of a triangle rectangle is 7 cm (measured on the hypotenuse), and it divides the hypotenuse in two segments m and n, being $m = \frac{1}{4} \cdot n$. Find m and n.
2) Find the area of a triangle rectangle knowing that the height divides the hypotenuse in two segments of 8 and 2 cm.