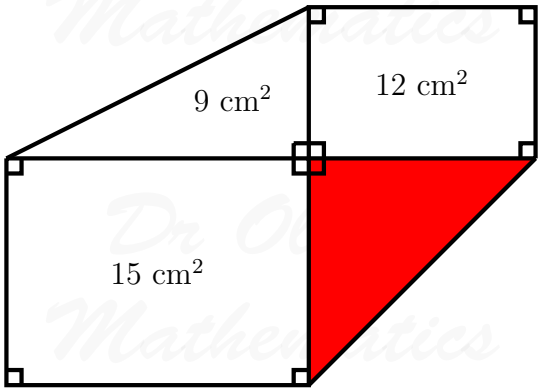
# Dr Oliver Mathematics
# Worked Examples
# Area 11

**From:** Nice Math, 22 June 2023

1. Find the area of the red triangle.

The diagram is **NOT** drawn accurately




**Solution**

Let $x$ cm and $h_1$ cm be the base and the height respectively of the 9 cm$^2$ square:

$$A = \tfrac{1}{2}bh \Rightarrow 9 = \tfrac{1}{2} \times x \times h_1$$
$$\Rightarrow h_1 = \frac{18}{x}.$$

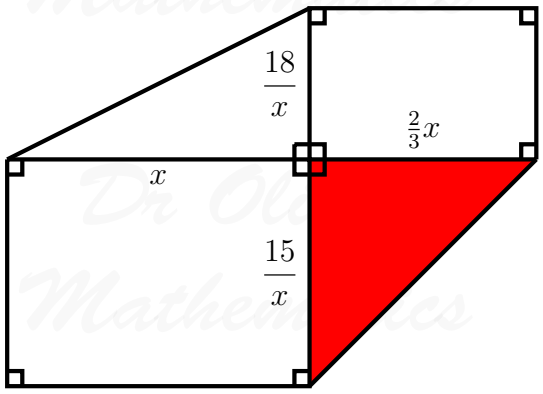
Let $y$ cm be the base of the 12 cm$^2$ square:

$$A = bh \Rightarrow 12 = y \times \frac{18}{x}$$
$$\Rightarrow y = \frac{12}{\frac{18}{x}}$$
$$\Rightarrow y = \tfrac{2}{3}x.$$

Let $h_2$ cm be the height of the 15 cm$^2$ square:

$$A = bh \Rightarrow 15 = x \times h_2$$
$$\Rightarrow h_2 = \frac{15}{x}.$$

Pictorially:




Finally,

$$\begin{aligned}\text{area of the red triangle} &= \tfrac{1}{2}bh \\ &= \tfrac{1}{2} \times \tfrac{2}{3}x \times \frac{15}{x} \\ &= \tfrac{1}{2} \times 2 \times 5 \\ &= \underline{\underline{5 \text{ cm}^2}}.\end{aligned}$$