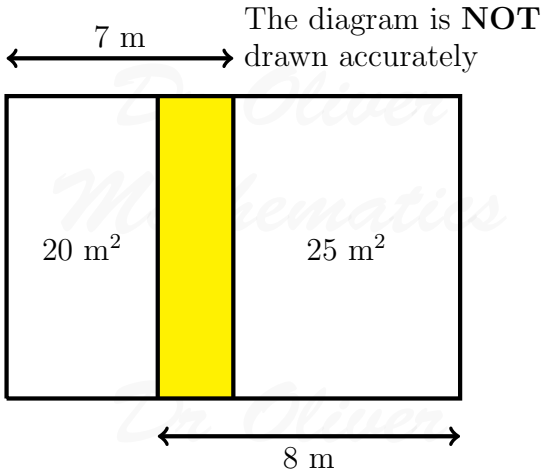
Dr Oliver Mathematics
Worked Examples
Area 9

From: Mind Your Decisions, 27 June 2021

1. We have the following:

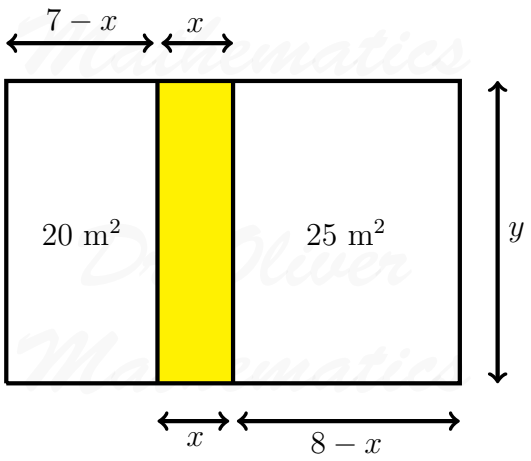
   - a rectangle, with area 20 m^2,
   - a yellow rectangle, and
   - a rectangle square, with area 25 m^2.

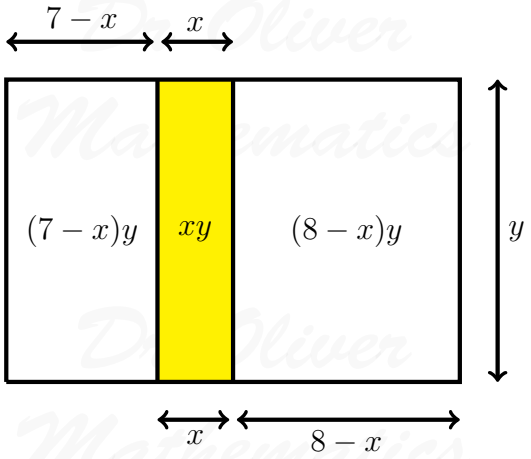


   Find the area of the yellow triangle.

Solution

Let x m be the length of the yellow rectangle and let y m be the height of the yellow rectangle.





First rectangle:

$$(7-x)y = 20 \Rightarrow 7y - xy = 20 \quad (1).$$

Third rectangle:

$$(8-x)y = 25 \Rightarrow 8y - xy = 25 \quad (2).$$

Do (2) − (1):

$$y = 5.$$

Insert the value into (1):

$$\begin{aligned}(7-x)y = 20 &\Rightarrow 5(7-x) = 20 \\ &\Rightarrow 7 - x = 4 \\ &\Rightarrow x = 3.\end{aligned}$$

[Check in (2): $(8-x)y = 5(8-3) = 5 \times 5 = 25$ ✓]

Finally,

$$\begin{aligned}\text{area of the yellow triangle} &= 3 \times 5 \\ &= \underline{\underline{15 \text{ m}^2}}.\end{aligned}$$