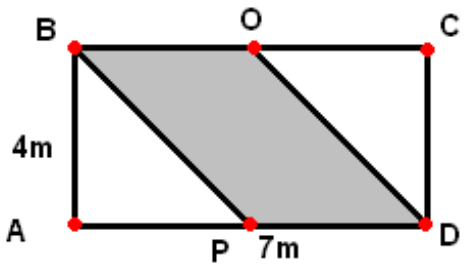
Task:

The rectangle is 7 m long and 4m tall. The entire rectangle is shaded except for two triangles that are on either side of the rectangle. The triangles' base is the height of the rectangle.

Solution:



It is easy to see that the area of the shaded figure is the difference between the area of the rectangle and the sum of the areas of triangles.

The triangles' base is the height of the rectangle, so $BA = AP = CD = OC$.

$\Delta ABP = \Delta CDO$ follows from the third rule of equality of triangles (with the two sides and an angle).

Let's calculate the area of a ΔABP:

$$S_{\Delta ABP} = \frac{1}{2} AB \cdot AP \cdot \sin \angle BAP = \frac{1}{2} \cdot 4 \cdot 4 = 8(m^2)$$

$$\Delta ABP = \Delta CDO \Rightarrow S_{\Delta CDO} = S_{\Delta ABP} = 8(m^2).$$

$$S_{ABCD} = AB \cdot CD = 4 \cdot 7 = 28(m^2)$$

$$S_{BODP} = S_{ABCD} - S_{\Delta CDO} - S_{\Delta ABP} = 28 - 8 - 8 = 12(m^2)$$

Answer: $12\ m^2$.