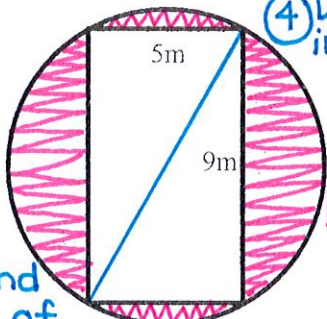


Pythagorean Theorem--Complex Area with Circles

Big Ideas: Area of Circle: $A = \pi r^2$

Find the area of the shaded region.



④ Difference in O & Π

$$\begin{aligned} 83.21 \\ - 45 \\ \hline 38.21 \text{ m}^2 \end{aligned}$$

① Find Hypotenuse & Diameter

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + 9^2 &= c^2 \\ 25 + 81 &= c^2 \\ 106 &= c^2 \\ \sqrt{106} &= c \\ \sqrt{106} &= d \\ \frac{\sqrt{106}}{2} &= r \end{aligned}$$

② Find Area of Circle

$$\begin{aligned} A_o &= \pi r^2 \\ A &= \pi \left(\frac{\sqrt{106}}{2} \right)^2 \\ A &= \pi \frac{106}{4} \\ A &= 26.5\pi \\ A &\approx 83.21 \text{ m}^2 \end{aligned}$$

③ Find Area of Rectangle

$$\begin{aligned} A_{\square} &= b \cdot h \\ A &= 5 \cdot 9 \\ A &= 45 \text{ m}^2 \end{aligned}$$

Find the area of the shape shown, comprised of a half circle and a triangle.



⑤ Area of $\Delta + \Delta$

$$\begin{aligned} 66.73 \\ + 38.5 \\ \hline 105.23 \text{ cm}^2 \end{aligned}$$

① Hypotenuse

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 7^2 + 11^2 &= c^2 \\ 49 + 121 &= c^2 \\ 170 &= c^2 \\ \sqrt{170} &= c \\ \sqrt{170} &= d \\ \frac{\sqrt{170}}{2} &= r \end{aligned}$$

② Area of O

$$\begin{aligned} A_o &= \pi r^2 \\ A &= \pi \left(\frac{\sqrt{170}}{2} \right)^2 \\ A &= \pi \frac{170}{4} \\ A &= 42.5\pi \end{aligned}$$

③ Half Circle

$$\begin{aligned} A &= \frac{42.5\pi}{2} \\ A &= 21.25\pi \\ A &\approx 66.73 \text{ cm}^2 \end{aligned}$$

④ Area of Δ $A_{\Delta} = \frac{b \cdot h}{2}$

$$A = \frac{7 \cdot 11}{2}$$

$$\begin{aligned} A &= \frac{77}{2} \\ A &= 38.5 \text{ cm}^2 \end{aligned}$$