

GATE 2021 ME 3Q

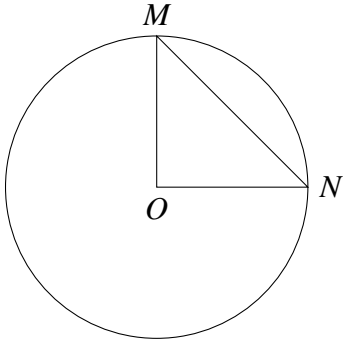
ee23btech11223 - Soham Prabhakar More

Question: In the figure above figure, O is the center of the circle and, M and N lie on the circle.

The area of the right triangle MON is 50cm^2

What is the area of the circle in cm^2 ?

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Solution:

Parameter	Description
r	Radius of Circle
A	Area of Right triangle $\triangle OMN$
A_c	Area of Circle

TABLE 1: Table of parameters

By Table 1,

$$A = \frac{1}{2} \pi ON \cdot OM = 50\text{cm}^2 \quad (1)$$

$$\therefore r = ON = OM \quad (2)$$

$$\frac{1}{2} r^2 = 50\text{cm}^2 \quad (3)$$

$$\Rightarrow r = 10\text{cm} \quad (4)$$

$$\Rightarrow A_c = \pi r^2 = 100\pi \quad (5)$$