

Area of Circles and Sectors

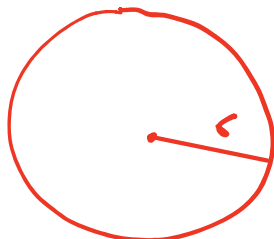
G.GMD.A.1

Notes Section 16.5

Name _____

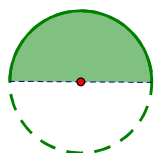
AREA OF A CIRCLE

$$A_{\text{circle}} = \pi r^2$$

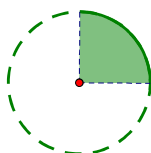


$$A_G = \pi r^2$$

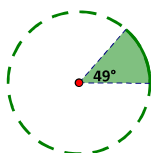
AREA OF A CIRCLE SECTOR



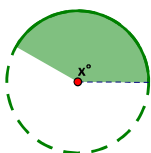
$$\text{Area} = \frac{180}{360} \pi r^2 = \frac{1}{2} \pi r^2$$



$$\text{Area} = \frac{90}{360} \pi r^2 = \frac{1}{4} \pi r^2$$



$$\text{Area} = \frac{49}{360} \pi r^2$$



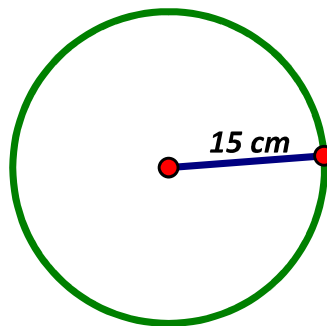
$$\text{Area} = \frac{x}{360} \pi r^2$$

$$\text{AREA}_{\text{CIRCLE SECTOR}} = \frac{x^\circ}{360} \pi r^2$$

Fraction Part of Circle

Find the area of each region. Give exact answers.

1.

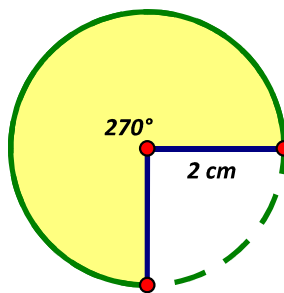


$$A = \pi r^2$$

$$A = \pi (15)^2$$

$$A = 225\pi \text{ cm}^2$$

2.



$$A_G = \frac{270}{360} \pi r^2$$

$$= \frac{3}{4} \pi (2)^2$$

$$= \frac{3}{4} \pi 4$$

$$A_G = 3\pi \text{ cm}^2$$

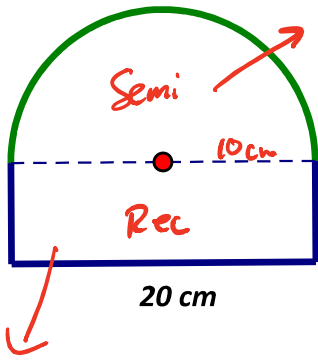
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3.



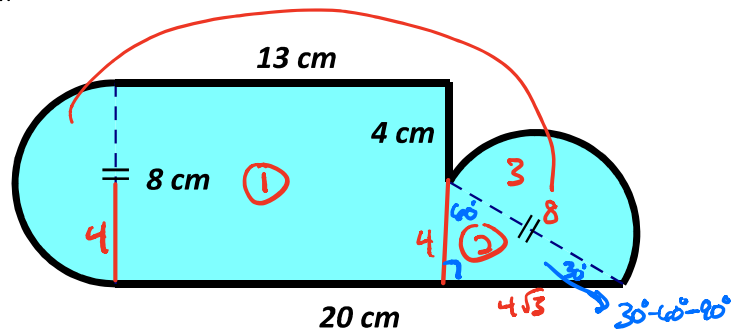
$$\begin{aligned}
 A_{\Delta} &= \frac{1}{2} \pi r^2 \\
 &= \frac{1}{2} \pi (10)^2 \\
 &= \frac{1}{2} \pi (100) \\
 A_{\Delta} &= 50\pi \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{\text{Rec}} &= b \cdot h \\
 &= (20)(6) \\
 A_{\text{Rec}} &= 120 \text{ cm}^2
 \end{aligned}$$

$$A_{\text{Figure}} = A_{\Delta} + A_{\text{Rec}}$$

$$A_{\text{Figure}} = (50\pi + 120) \text{ cm}^2$$

4.



$$\begin{aligned}
 A_{\text{Rec}} &= b \cdot h \\
 &= 8(13) \\
 A_{\text{Rec}} &= 104 \text{ cm}^2
 \end{aligned}
 \quad \left| \quad
 \begin{aligned}
 A_{\Delta} &= \frac{1}{2} bh \\
 &= \frac{1}{2} (4\sqrt{3})(4) \\
 A_{\Delta} &= 8\sqrt{3} \text{ cm}^2
 \end{aligned}
 \quad \left| \quad
 \begin{aligned}
 A_{\text{Semi}} &= \pi r^2 \\
 &= \pi (4)^2 \\
 A_{\text{Semi}} &= 16\pi \text{ cm}^2
 \end{aligned}$$

$$A_{\text{Figure}} = A_{\text{Rec}} + A_{\Delta} + A_{\text{Semi}}$$

$$A_{\text{Figure}} = (104 + 8\sqrt{3} + 16\pi) \text{ cm}^2$$