

Area of Sectors and Segments of a Circle

Dr. Loreto G. Domingo
Noemi Sangria
Ferdinand Tala
Marie Carvy Hazel Galinato
Joanne A. Abia
Joshua Catungal
Jonathan R. Bacolod

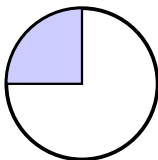
Sauyo High School

September 21, 2019

Sector of a Circle

Sector: a region in the circle bounded by two radii and the minor arc they determine

The **area of a sector** is represented by $A = \frac{n}{360} \pi r^2$, where n is the number of degrees in the central angle of a sector.



Example

To solve for the area of the shaded region:

$$n = 90^\circ$$

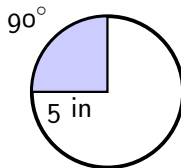
$$r = 5 \text{ in.}$$

$$A = \frac{n}{360} \pi r^2$$

$$A = \frac{90}{360} (\pi)(5^2)$$

$$A = \frac{1}{4} (\pi)(25)$$

$$A = \frac{25}{4} \pi \text{ in}^2$$

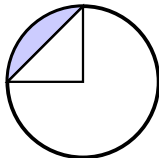


Segment of a Circle

Segment: a region bounded by an arc and the chord of the arc

The **area of a segment** of a circle is found by subtracting the area of a triangle from the area of a sector.

$$A_{\text{segment}} = A_{\text{sector}} - A_{\text{triangle}}$$



Example

To solve for the area of the shaded region:
 $n = 90^\circ$, $r = 5$ in.

$$A_{\text{sector}} = \frac{n}{360} \pi r^2$$

$$A_{\text{sector}} = \frac{90}{360} (\pi)(5^2)$$

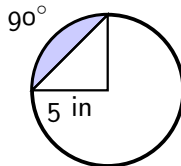
$$A_{\text{sector}} = \frac{1}{4} (\pi)(25)$$

$$A_{\text{sector}} = \frac{25}{4} \pi \text{ in}^2$$

$$A_{\text{triangle}} = \frac{1}{2} bh$$

$$A_{\text{triangle}} = \frac{1}{2} (5)(5)$$

$$A_{\text{triangle}} = \frac{25}{2} \text{ in}^2$$



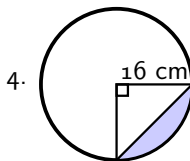
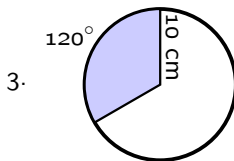
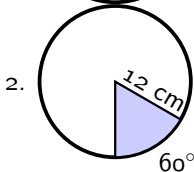
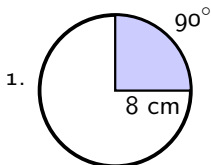
$$A_{\text{segment}} = A_{\text{sector}} - A_{\text{triangle}}$$

$$A_{\text{segment}} = \frac{25}{4} \pi - \frac{25}{2}$$

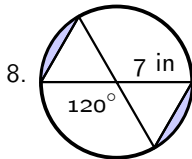
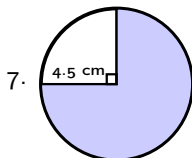
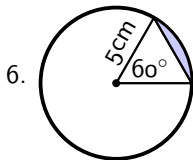
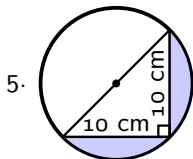
$$A_{\text{segment}} = -\frac{25}{2} + \frac{25}{4} \pi \text{ in}^2$$

Practice Exercises

Find the area of each shaded region/s in each figure. Express your answer in terms of π .

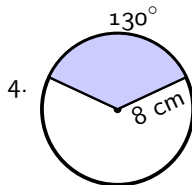
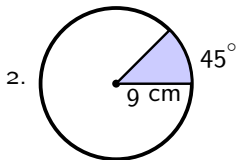
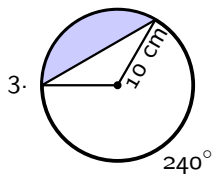
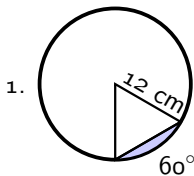


Practice Exercises



Problem Set

Find the area of each shaded region/s in each figure. Express your answer in terms of π .



Problem Set

