

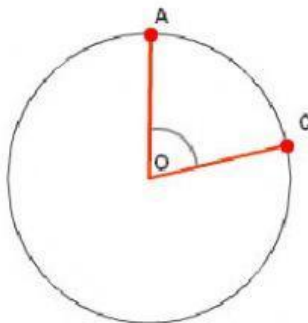


Bruto, Tara dan Netto



Sub Pokok Materi : Panjang Busur dan Luas Juring
 Kelas/Semester : VIII/II
 Waktu : 2x 40 menit
 Tujuan Pembelajaran :
 Peserta didik dapat menghitung panjang busur
 Peserta didik dapat menghitung luas juring

1. Panjang Busur



Perhatikan gambar di samping !

Jika jari-jari lingkaran $OA = r$ dan sudut pusat $AOC = \alpha$

yang menghadap busur AC maka :

$$\frac{\text{panjang busur AC}}{\text{keliling lingkaran}} = \frac{\text{sudut pusat AOC}}{\text{satu putaran}}$$

$$\frac{\text{panjang busur AC}}{2\pi r} = \frac{\alpha}{360^\circ}$$

$$\text{Panjang busur} = \frac{\alpha}{360^\circ} \times 2\pi r$$

Contoh Soal :

1. Sebuah lingkaran dengan sudut POQ 45° . Dan panjang OQ 7 cm. hitunglah panjang busur PQ!

Jawab :

Dik : $\alpha = 45^\circ$; $r = 7$ cm

Dit : panjang busur PQ

Peny :

$$\begin{aligned} \text{Panjang busur PQ} &= \frac{\alpha}{360^\circ} \times 2\pi r \\ &= \frac{45^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 7 \text{ cm} \\ &= \frac{45}{360} \times 2 \times 22 \times 7 \text{ cm} \\ &= 5,5 \text{ cm} \end{aligned}$$

Sebagai referensi, silakan kalian simak video berikut:

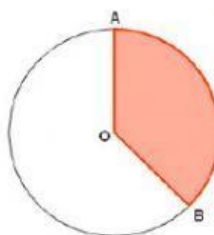
2. Luas Juring

Perhatikan gambar diatas!

$$\frac{\text{Luas juring AOB}}{\text{luas lingkaran}} = \frac{\text{Besarnya sudut pusat}}{360^\circ}$$

$$\frac{\text{Luas juring AOB}}{\pi r^2} = \frac{\text{Besarnya sudut } \angle AOB}{360^\circ}$$

$$\text{Luas juring AOB} = \frac{\alpha}{360^\circ} \times \pi r^2$$



Contoh soal :

1. Diketahui lingkaran dengan jari-jari 30 cm dan sudut pusat AOB = 120° . hitunglah luas juring AOB!

Jawab :

Dik : $r = 30$ cm ; $\angle AOB = 120^\circ$.

Dit : luas juring AOB !

Peny :

$$\begin{aligned} \text{Luas juring AOB} &= \frac{\alpha}{360^\circ} \times \pi r^2 \\ &= \frac{120^\circ}{360^\circ} \times \frac{22}{7} \times (30)^2 \\ &= \frac{1}{3} \times 22 \times 30 \times 30 \\ &= 942 \text{ cm}^2 \end{aligned}$$

Latihan

1. Hitunglah luas juring dan Panjang busur dari gambar di samping!

Dik : $r = \dots\dots\dots \text{ cm}$; $\angle AOB = \dots\dots\dots^\circ$.

Dit : luas juring AOB !

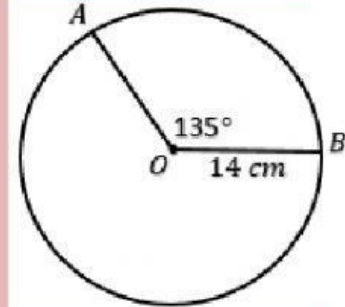
Peny :

$$\begin{aligned}\text{Luas juring AOB} &= \frac{\alpha}{360^\circ} \times \pi r^2 \\ &= \frac{\dots\dots\dots}{360^\circ} \times \dots\dots \times (\dots)^2 \\ &= \frac{\dots\dots}{\dots\dots} \times \dots\dots \times \dots\dots \times \dots\dots \\ &= \dots\dots \text{ cm}^2\end{aligned}$$

Dit : panjang busur PQ

Peny :

$$\begin{aligned}\text{Panjang busur PQ} &= \frac{\alpha}{360^\circ} \times 2\pi r \\ &= \frac{\dots\dots\dots}{360^\circ} \times 2 \times \frac{\dots\dots}{7} \times \dots\dots \\ &= \frac{\dots\dots}{\dots\dots} \times \dots\dots \times \frac{22}{7} \times \dots\dots \\ &= \dots\dots \text{ cm}\end{aligned}$$



2. Diketahui sebuah lingkaran berpusat di P dengan $\angle APB = 30^\circ$, panjang busur PB = 10 cm, dan $\pi = 3,14$. Tentukan luas juring APB dan Panjang busur APB!

Dik : $r = \dots\dots\dots \text{ cm}$; $\angle AOB = \dots\dots\dots^\circ$.

Dit : luas juring AOB !

Peny :

$$\begin{aligned}\text{Luas juring AOB} &= \frac{\alpha}{360^\circ} \times \pi r^2 \\ &= \frac{\dots\dots\dots}{360^\circ} \times \dots\dots \times (\dots)^2 \\ &= \frac{\dots\dots}{\dots\dots} \times \dots\dots \times \dots\dots \times \dots\dots \\ &= \dots\dots \text{ cm}^2\end{aligned}$$

Dit : panjang busur PQ

Peny :

$$\begin{aligned}\text{Panjang busur PQ} &= \frac{\alpha}{360^\circ} \times 2\pi r \\ &= \frac{\dots\dots\dots}{360^\circ} \times 2 \times 3,14 \times \dots\dots \\ &= \frac{\dots\dots}{\dots\dots} \times \dots\dots \times \dots\dots \times \dots\dots \\ &= \dots\dots \text{ cm}\end{aligned}$$