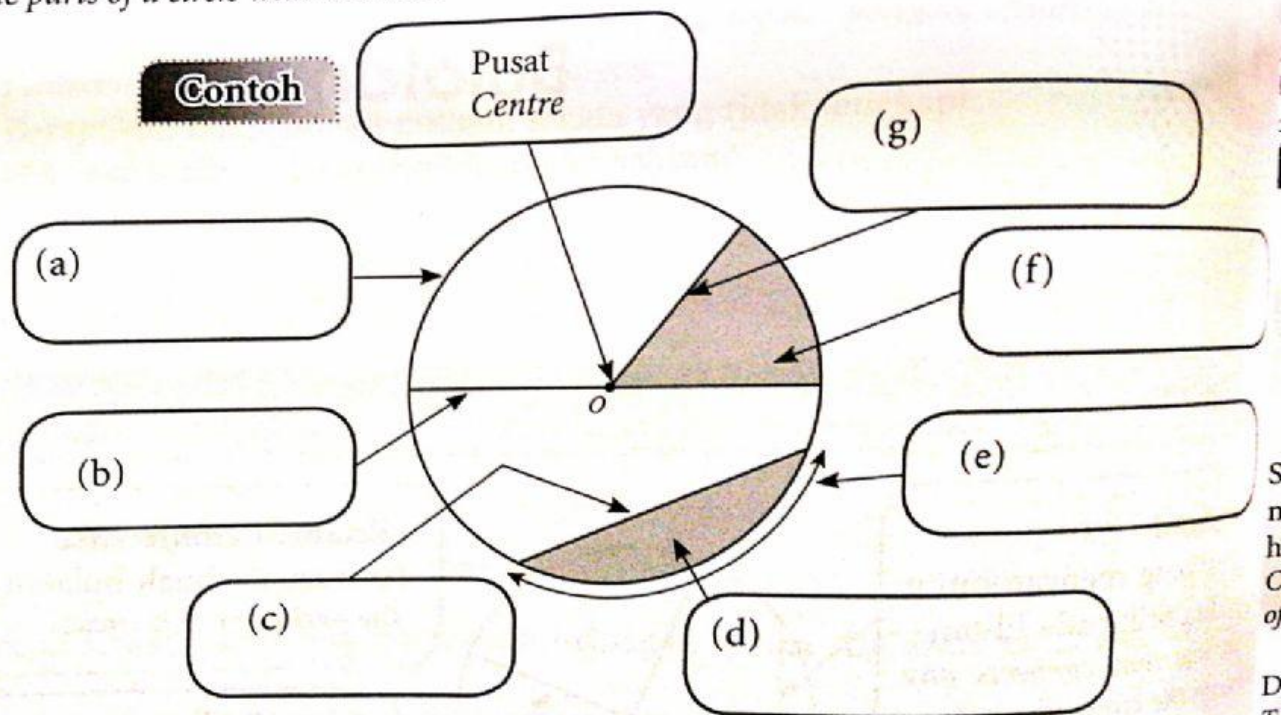


1. Lorekkan bahagian bulatan berpusat O . **(TP)**
Label the parts of a circle with centre O .



5.3 Lilitan dan Luas Bulatan

1. Lilitan sebuah bulatan/*Circumference of a circle* $= \pi d = 2\pi j$
2. Luas sebuah bulatan/*Area of a circle* $= \pi j^2$
3. $\frac{\text{Panjang lengkok/Length of arc}}{2\pi j} = \frac{\theta}{360^\circ}$
4. $\frac{\text{Luas sektor/Area of sector}}{\pi j^2} = \frac{\theta}{360^\circ}$

5. Hitung lilitan bagi bulatan yang berikut. [Guna $\pi = \frac{22}{7}$] **112**

Calculate the circumference of the following circles. [Use $\pi = \frac{22}{7}$]

Contoh

- (a) Diameter = 21 cm

Lilitan/*Circumference* $= \pi d$

$$= \frac{22}{7} \times 21 = 66 \text{ cm}$$

Contoh

- (b) Jejari/*Radius* = 5 cm

Lilitan/*Circumference* $= 2\pi j$

$$= 2 \times \frac{22}{7} \times 5 = 31\frac{3}{7} \text{ cm}$$

(i) Diameter = 7 cm

(ii) Diameter = 14 cm

(i) Jejari/*Radius* = 3.5 cm

(ii) Jejari/*Radius* = 28 cm

6. Selesaikan setiap yang berikut./*Solve each of the following.* **112**

Contoh

Diberi lilitan sebuah bulatan ialah 133.85 cm. Hitung jejari bulatan itu, dalam cm.

[Guna $\pi = 3.142$]

Given that the circumference of a circle is 133.85 cm. Calculate the radius of the circle, in cm.

[Use $\pi = 3.142$]

$$2\pi j = 133.85$$

$$2 \times 3.142 \times j = 133.85$$

$$j = \frac{133.85}{6.284}$$

$$= 21.3 \text{ cm}$$

- (a) Diberi lilitan sebuah bulatan ialah 13.2 cm. Hitung diameter bulatan itu, dalam cm.

[Guna $\pi = \frac{22}{7}$]

Given that the circumference of a circle is 13.2 cm. Calculate the diameter of the circle, in

cm. [Use $\pi = \frac{22}{7}$]

- (b) Diberi lilitan sebuah bulatan ialah 47.13 cm. Hitung jejari bulatan, dalam cm. [Guna $\pi = 3.142$]

Given that the circumference of a circle is 47.13 cm. Calculate the radius of the circle, in cm.

[Use $\pi = 3.142$]

7. Selesaikan setiap yang berikut. **112**
Solve each of the following.

Contoh

Diberi luas bulatan ialah 38.5 cm^2 .
Given that the area of a circle is 38.5 cm^2 .

- (i) Hitung jejari bulatan itu.
Calculate the radius of the circle.

$$[\text{Guna/Use } \pi = \frac{22}{7}]$$

$$\pi j^2 = 38.5$$

$$\frac{22}{7} \times j^2 = 38.5$$

$$j^2 = 38.5 \times \frac{7}{22} \quad j = \sqrt{12.25}$$

$$j^2 = 12.25 \quad j = 3.5 \text{ cm}$$

- (ii) Hitung lilitan bulatan itu.
Calculate the circumference of the circle.

Lilitan/Circumference

$$= 2 \times \frac{22}{7} \times 3.5$$

$$= 22 \text{ cm}$$

- (a) Diberi luas bulatan ialah 75.46 cm^2 .
Given that the area of a circle is 75.46 cm^2 .

- (i) Hitung jejari bulatan itu.
Calculate the radius of the circle.

- (ii) Hitung lilitan bulatan itu.
Calculate the circumference of the circle.

$$[\text{Guna/Use } \pi = \frac{22}{7}]$$

- (b) Diberi lilitan bulatan ialah 52.8 cm .
Given that the circumference of a circle is 52.8 cm .

- (i) Hitung diameter bulatan itu.
Calculate the diameter of the circle.

- (ii) Hitung luas bulatan itu.
Calculate the area of the circle.

$$[\text{Guna/Use } \pi = \frac{22}{7}]$$

8. Hitung panjang lengkok apabila diberi jejari dan sudut pada pusat bulatan. Berikan jawapan dalam dua tempat perpuluhan. $[\text{Guna } \pi = \frac{22}{7}]$ **113**

Calculate the length of arc given the radius and the angle subtended at the centre of the circle. Give the answer in two decimal places. $[\text{Use } \pi = \frac{22}{7}]$

Contoh

Jejari/Radius = 3.6 cm

Sudut pada pusat = 40°

Angle subtended at centre

Panjang lengkok/Length of arc

$$= \frac{40^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 3.6$$

$$= 2.51 \text{ cm}$$

- (a) Jejari/Radius = 14 cm

Sudut pada pusat = 60°

Angle subtended at centre

9. Hitung panjang jejari bulatan diberi panjang lengkok dan sudut pada pusat bulatan .

[Guna $\pi = \frac{22}{7}$]

Calculate the radius of the circle given the length of arc and the angle subtended at the centre of the circle.

[Use $\pi = \frac{22}{7}$]

Contoh

Panjang lengkok/Length of arc = 2.2 cm

Sudut pada pusat = 70°

Angle subtended at centre

$$2\pi j = 2.2 \times \frac{360^\circ}{70^\circ}$$

$$2 \times \frac{22}{7} \times j = 2.2 \times \frac{360^\circ}{70^\circ}$$

$$j = 2.2 \times \frac{360^\circ}{70^\circ} \times \frac{7}{22} \times \frac{1}{2} = 1.8 \text{ cm}$$

(a) Panjang lengkok/Length of arc = 5.5 cm

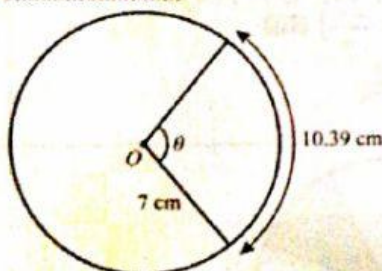
Sudut pada pusat = 35°

Angle subtended at centre

10. Hitung sudut pada pusat yang dicangkum oleh panjang lengkok yang berikut. [Guna $\pi = \frac{22}{7}$]

Calculate the angle subtended at the centre by the length of arc. [Use $\pi = \frac{22}{7}$]

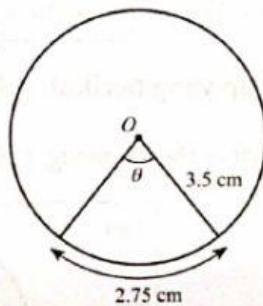
Contoh



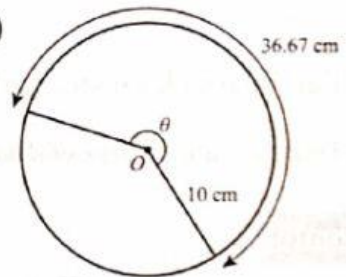
$$\theta = \frac{10.39}{2 \times \frac{22}{7} \times 7} \times 360^\circ$$

$$= 85^\circ$$

(a)



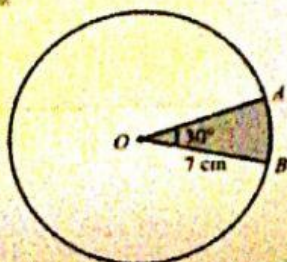
(b)



11. Hitung luas sektor AOB. Berikan jawapan dalam dua tempat perpuluhan. [Guna $\pi = \frac{22}{7}$]

Calculate the area of sector AOB. Give the answer in two decimal places. [Use $\pi = \frac{22}{7}$]

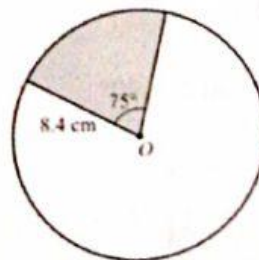
Contoh



$$\text{Luas sektor AOB} = \frac{30^\circ}{360^\circ} \times \frac{22}{7} \times 7 \times 7$$

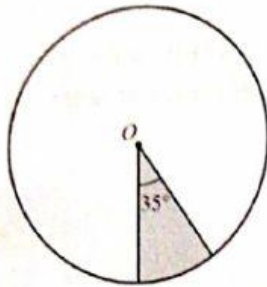
$$\text{Area of sector AOB} = 12.83 \text{ cm}^2$$

(a)



12. Hitung jejari bagi luas sektor berlorek. [Guna $\pi = \frac{22}{7}$]
 Calculate the radius of the area of shaded sector. [Use $\pi = \frac{22}{7}$]

Contoh

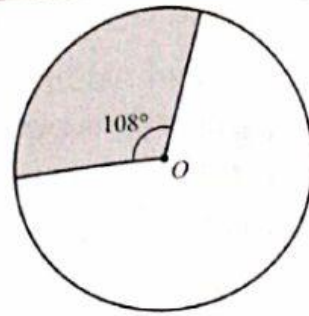


Luas sektor berlorek = 24.75 cm^2
 Area of shaded sector

$$\frac{35^\circ}{360^\circ} \times \frac{22}{7} \times j^2 = 24.75$$

$$\begin{aligned} j^2 &= 24.75 \times \frac{7}{22} \times \frac{360^\circ}{35^\circ} \\ &= 81 \\ j &= 9 \text{ cm} \end{aligned}$$

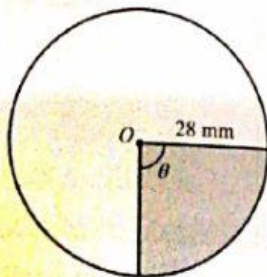
(a)



Luas sektor berlorek = 46.2 cm^2
 Area of shaded sector

13. Cari nilai sudut sektor berlorek bagi setiap yang berikut. [Guna $\pi = \frac{22}{7}$] **TP3**
 Find the value of angle of shaded sector for each of the following. [Use $\pi = \frac{22}{7}$]

Contoh

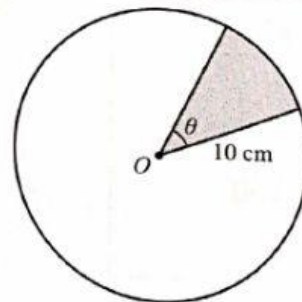


Luas sektor berlorek = 616 mm^2
 Area of shaded sector

$$\frac{\theta}{360^\circ} \times \frac{22}{7} \times 28^2 = 616$$

$$\theta = 616 \times \frac{1}{28^2} \times \frac{7}{22} \times 360^\circ = 90^\circ$$

(a)



Luas sektor berlorek = 26.2 cm^2
 Area of shaded sector

Selesaikan setiap yang berikut. **112 113**

Solve each of the following.

Contoh

Rajah yang diberi menunjukkan sektor AOC berpusat O. Jejari bulatan ialah 14 cm dan $AB = BO$. Hitung luas kawasan berlorek. [Guna $\pi = \frac{22}{7}$]

The diagram given shows sector AOC with centre at O. The radius of the circle is 14 cm and $AB = BO$. Calculate the area of the shaded region. [Use $\pi = \frac{22}{7}$]

Luas sektor AOC/Area of the sector AOC

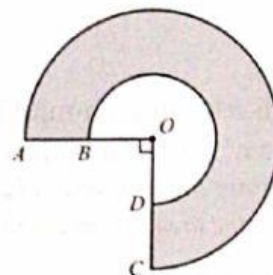
$$= \frac{270^\circ}{360^\circ} \times \frac{22}{7} \times 14^2 = 462 \text{ cm}^2$$

Luas sektor BOD/Area of the sector BOD

$$= \frac{270^\circ}{360^\circ} \times \frac{22}{7} \times 7^2 = 115.5 \text{ cm}^2$$

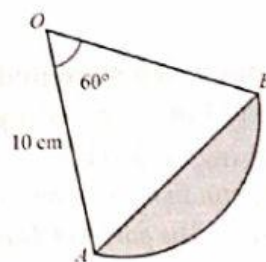
Luas kawasan berlorek/Area of the shaded region

$$= 462 - 115.5 = 346.5 \text{ cm}^2$$



- (a) Rajah di sebelah menunjukkan sebuah sektor AOB. Panjang $AB = 12$ cm. Hitung luas kawasan berlorek. [Guna $\pi = 3.142$] **112**

The diagram shows a sector AOB. The length of $AB = 12$ cm. Calculate the area of the shaded region. [Use $\pi = 3.142$]



- (b) Rajah di bawah menunjukkan sebuah segi empat tepat dengan dua sukuan bulatan yang sama. Luas setiap sukuan ialah 154 cm^2 . Hitung perimeter kawasan berlorek.

The diagram below shows a rectangle with two similar quadrants. The area of each quadrant is 154 cm^2 . Calculate the perimeter of the shaded region. [Use $\pi = \frac{22}{7}$] **113**

