

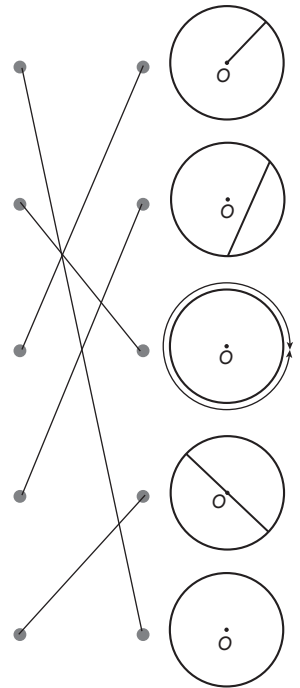
JAWAPAN

BAB
5

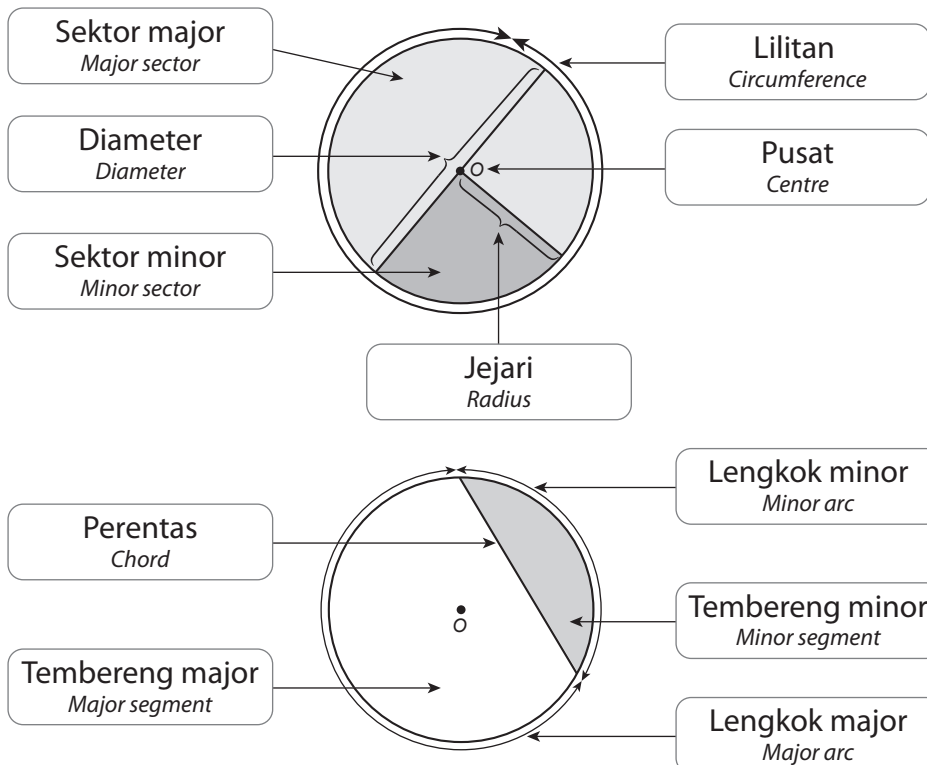
Bulatan Circles

1.

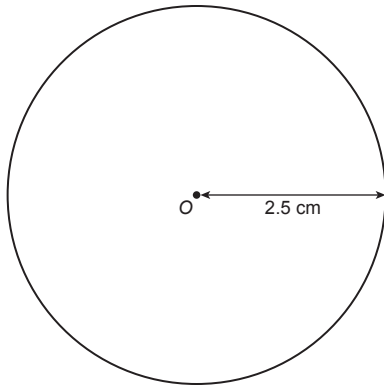
Bahagian bulatan Part of a circle	Sifat Characteristic
Jejari Radius	Suatu titik tetap dalam bulatan yang sama jarak dari semua titik pada lilitan. <i>A fixed point that is equidistant from all points on the circumference.</i>
Pusat Bulatan Centre of circle	Perimeter bagi suatu bulatan. <i>Perimeter of a circle.</i>
Lilitan Circumference	Jarak di antara pusat bulatan dengan sebarang titik pada lilitan. <i>Distance between the centre of a circle and any point on the circumference.</i>
Diameter Diameter	Suatu garis lurus yang menyambungkan dua titik pada lilitan. <i>A straight line which joins two points on the circumference.</i>
Perentas Chord	Suatu garis lurus yang melalui pusat bulatan dan kedua-dua hujung garis itu berada pada lilitan. <i>A line which passes through the centre of circle and both ends of the line are on the circumference.</i>



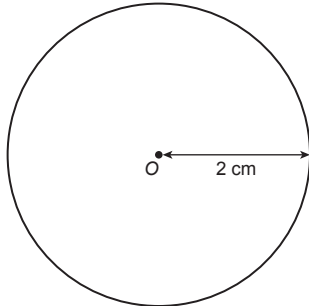
2.



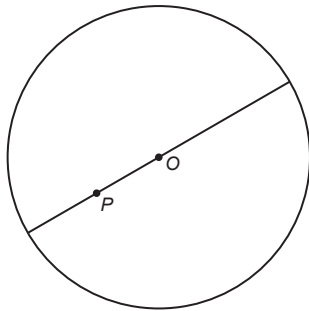
3. (a)



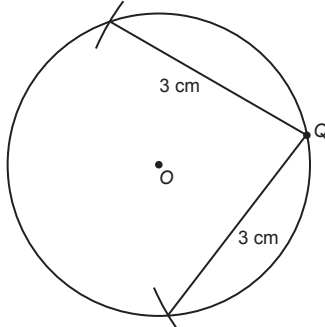
(b)



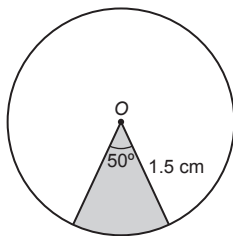
4. (a)



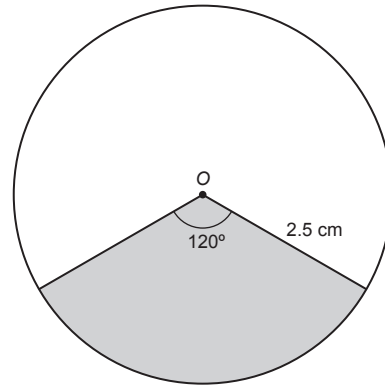
(b)



(c)



(d)



5. (a) (i) diameter; paksi simetri
diameter; axis of symmetry

(ii) tidak terhingga
infinite

(iii) diameter
diameter

(b) (i) $OS; PR; PQ = QR$; pembahagi dua sama serenjang
 $OS; PR; PQ = QR$, *perpendicular bisector*

(ii) berserenjang
perpendicular

(c) (i) $AB; XW$

(ii) $CD; YZ$

(iii) pusat bulatan, O
centre of the circle, O

(d) (i) sama panjang
same length

(ii) lengkok RXS ; lengkok PYQ
arc RXS ; arc PYQ

(e) (i) $AO; BO$

(ii) sama panjang
same length

$$\begin{aligned} 6. \quad \frac{DE}{CD} &= \frac{9}{4} \\ DE &= \frac{9}{4}(1.6) \\ &= 3.6 \text{ cm} \end{aligned}$$

$$\begin{aligned} OB = OE &= \frac{CD + DE}{2} \\ &= \frac{1.6 + 3.6}{2} \\ &= 2.6 \text{ cm} \end{aligned}$$

$$\begin{aligned} DB &= \sqrt{OB^2 - OD^2} \\ &= \sqrt{2.6^2 - (2.6 - 1.6)^2} \\ &= \sqrt{5.76} \\ &= 2.4 \text{ cm} \end{aligned}$$

$$\begin{aligned} AB &= 2 \times 2.4 \\ &= 4.8 \text{ cm} \end{aligned}$$



7. Jejari / Radius, $OQ = OS = 13$ mm

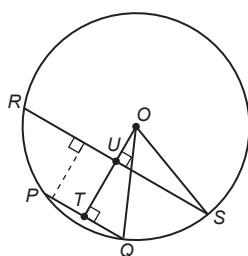
$$PT = TQ = \frac{10}{2} = 5 \text{ mm}$$

$$RU = US = \frac{24}{2} = 12 \text{ mm}$$

$$\begin{aligned} OT &= \sqrt{OQ^2 - TQ^2} \\ &= \sqrt{13^2 - 5^2} \\ &= 12 \text{ mm} \end{aligned}$$

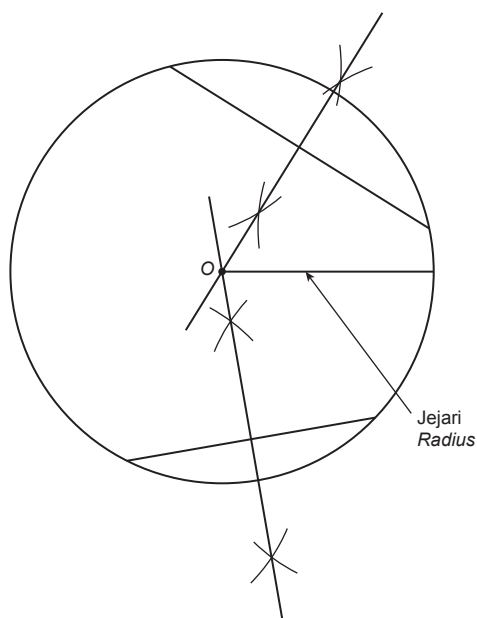
$$\begin{aligned} OU &= \sqrt{OS^2 - US^2} \\ &= \sqrt{13^2 - 12^2} \\ &= 5 \text{ mm} \end{aligned}$$

$$\begin{aligned} x &= OT - OU \\ &= 12 - 5 \\ &= 7 \end{aligned}$$



- OT membahagi dua sama serenjang PQ .
 OT divides PQ into two parts of equal length.
- OU membahagi dua sama serenjang RS .
 OU divides RS into two parts of equal length.

8.



Jejari / Radius = 2.8 cm

9. (a) $ST = UV$, maka/ thus $OM = ON$

$$\begin{aligned} ON &= \sqrt{OU^2 - UN^2} \\ &= \sqrt{10^2 - 8^2} \quad \leftarrow UN = \frac{16}{2} = 8 \text{ cm} \\ &= 6 \text{ cm} \end{aligned}$$

$$\begin{aligned} MN &= 2 \times 6 \\ &= 12 \text{ cm} \end{aligned}$$

- (b) $OR = 13$ cm

$$\begin{aligned} PA &= AR = 24 \div 2 \\ &= 12 \text{ cm} \end{aligned}$$

$$\begin{aligned} OA^2 &= OR^2 - AR^2 \\ &= 13^2 - 12^2 \\ &= 25 \end{aligned}$$

$$\begin{aligned} OA &= \sqrt{25} \\ &= 5 \text{ cm} \end{aligned}$$

$$\begin{aligned} AQ &= OQ - OA \\ &= 13 - 5 \\ &= 8 \text{ cm} \end{aligned}$$

- (c) Lebar / Width = diameter
 $= 2 \times 20$ cm
 $= 40$ cm

$$\begin{aligned} \text{Panjang / Length} &= 5 \times \text{diameter} \\ &= 5 \times 40 \text{ cm} \\ &= 200 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Luas / Area} &= 200 \times 40 \\ &= 8000 \text{ cm}^2 \end{aligned}$$

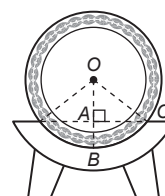
- (d) Diameter $X = 2 \times 15 = 30$ cm
Diameter $Y = 2 \times 17 = 34$ cm
Diameter $Z = 2 \times 19 = 38$ cm

Bola X dan Y. Diameter kedua-dua bola ini lebih kecil daripada diameter jaring.
Balls X and Y. The diameters of both the balls are smaller than the diameter of the netted hoop.

- (e) Andaikan piring P muat dengan sempurna pada pemegang itu.

Assume plate P fits perfectly on the holder.

Jejari piring P / Radius of plate $P = 5$ cm



$$AC = 8 \div 2 = 4 \text{ cm}$$

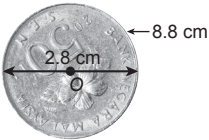
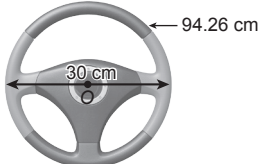
$$\begin{aligned} OA &= \sqrt{OC^2 - AC^2} \\ &= \sqrt{5^2 - 4^2} \\ &= 3 \text{ cm} \end{aligned}$$

$$\begin{aligned} AB &= 5 - 3 \\ &= 2 \text{ cm} \end{aligned}$$



Maka, piring P dapat muat dengan sempurna.
Thus, plate P can fit perfectly on the holder.

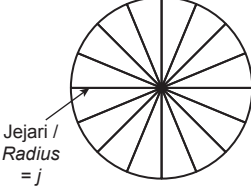
10.

Objek Object	Lilitan Circumference	Diameter Diameter	Lilitan/ Circumference Diameter/ Diameter
(a) 	8.8 cm	2.8 cm	$\frac{8.8}{2.8} = 3.142$
(b) 	94.26 cm	30 cm	$\frac{94.26}{30} = 3.142$

- Nisbah lilitan kepada diameter sebuah bulatan dikenali sebagai π , dengan sebutan 'pi' dan mempunyai nilai 3.142 atau $\frac{22}{7}$.

The ratio of circumference to diameter of a circle is known as π , pronounce as 'pi' and has the value of 3.142 or $\frac{22}{7}$.

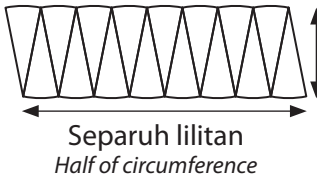
11.



Jejari / Radius = j

Susun sektor-sektor bulatan menjadi segi empat selari

Arrange the sectors to form a parallelogram



Jejari
Radius

Separuh lilitan
Half of circumference

Maka, luas bulatan = Luas segi empat selari

Thus, area of circle = Area of parallelogram

= Tapak $\times$ Tinggi

Base Height

= $\frac{1}{2} \times \text{Lilitan Circumference} \times \text{Jejari Radius}$

= $\frac{1}{2} \times 2\pi j \times j$

= πj^2

12. (a) Lilitan/ Circumference

$$= \pi d$$

$$= \frac{22}{7} \times 100.1$$

$$= 314.6 \text{ cm}$$

(b) Lilitan/ Circumference

$$= \pi d$$

$$= 3.142 \times 70$$

$$= 219.94 \text{ cm}$$

(c) Lilitan/ Circumference

$$= 2\pi j$$

$$= 2 \times \frac{22}{7} \times 28$$

$$= 176 \text{ cm}$$

(d) Lilitan/ Circumference

$$= 2\pi j$$

$$= 2 \times 3.142 \times 50$$

$$= 314.2 \text{ cm}$$

(e) $\pi d = 171.2$

$$3.142 \times d = 171.2$$

$$d = \frac{171.2}{3.142}$$

$$= 54.5 \text{ cm}$$

(f) $\pi d = \frac{33}{14}$

$$\frac{22}{7} \times d = \frac{33}{14}$$

$$d = \frac{33}{14} \times \frac{7}{22}$$

$$= 0.75 \text{ cm}$$



$$\begin{aligned} \text{(g)} \quad 2\pi j &= 47.13 \\ 2 \times 3.142 \times j &= 47.13 \\ j &= \frac{47.13}{2 \times 3.142} \\ &= 7.5 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(h)} \quad 2\pi j &= 46\frac{1}{5} \\ 2 \times \frac{22}{7} \times j &= \frac{231}{5} \\ j &= \frac{231}{5} \times \frac{7}{44} \\ &= 7.35 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{13. (a) Luas / Area} &= \pi j^2 \\ &= 3.142 \times 4^2 \\ &= 50.27 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{(b) Luas / Area} &= \pi j^2 \\ &= \frac{22}{7} \times \left(\frac{10.5}{2}\right)^2 \\ &= 86.63 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{(c) Luas / Area} &= \pi j^2 \\ &= 3.142 \times 6.5^2 \\ &= 132.75 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{(d) Luas / Area} &= \pi j^2 \\ 3850 &= \frac{22}{7} \times j^2 \\ j &= \sqrt{3850 \times \frac{7}{22}} \\ &= 35 \text{ cm} \\ d &= 2 \times 35 \\ &= 70 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(e) Luas / Area} &= \pi j^2 \\ 706.95 &= 3.142 \times j^2 \\ j &= \sqrt{706.95 \div 3.142} \\ &= 15 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(f) Luas / Area} &= \pi j^2 \\ 452\frac{4}{7} &= \frac{22}{7} \times j^2 \\ j &= \sqrt{\frac{3168}{7} \times \frac{7}{22}} \\ &= 12 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{14. (a)} \quad 2\pi j &= 13.2 \\ 2 \times \frac{22}{7} \times j &= 13.2 \\ j &= 13.2 \times \frac{7}{44} \\ &= 2.1 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Luas bulatan / Area of circle} &= \pi j^2 \\ &= \frac{22}{7} \times 2.1^2 \\ &= 13.86 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad 2\pi j &= 92.46 \\ 2 \times \frac{22}{7} \times j &= 92.46 \\ j &= 92.46 \times \frac{7}{44} \\ &= 14.7 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Luas bulatan / Area of circle} &= \pi j^2 \\ &= \frac{22}{7} \times 14.7^2 \\ &= 679.14 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad 2\pi j &= 62.84 \\ 2 \times \frac{22}{7} \times j &= 62.84 \\ j &= 62.84 \times \frac{7}{44} \\ &= 10 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Luas bulatan / Area of circle} &= \pi j^2 \\ &= \frac{22}{7} \times 10^2 \\ &= 314.29 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{15. (a)} \quad \pi j^2 &= 706.95 \\ \frac{22}{7} \times j^2 &= 706.95 \\ j &= \sqrt{706.95 \times \frac{7}{22}} \\ &= 15 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Lilitan bulatan / Circumference of circle} &= 2\pi j \\ &= 2 \times \frac{22}{7} \times 15 \\ &= 94.29 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad \pi j^2 &= 154 \\ \frac{22}{7} \times j^2 &= 154 \\ j &= \sqrt{154 \times \frac{7}{22}} \\ &= 7 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Lilitan bulatan / Circumference of circle} &= 2\pi j^2 \\ &= 2 \times \frac{22}{7} \times 7 \\ &= 44 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad \pi j^2 &= 17 \frac{1}{9} \\ \frac{22}{7} \times j^2 &= \frac{154}{9} \\ j &= \sqrt{\frac{154}{9} \times \frac{7}{22}} \\ &= 2.33 \text{ cm} \end{aligned}$$

Lilitan bulatan/ *Circumference of circle*
 $= 2\pi j^2$
 $= 2 \times \frac{22}{7} \times 2.33$
 $= 14.65 \text{ cm}$

$$\begin{aligned} \text{16. (a)} \quad x &= \frac{280^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 8 \\ &= 39.11 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad x &= \frac{160^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 18 \\ &= 50.29 \end{aligned}$$

$$\begin{aligned} \text{(c)} \quad \theta &= 360^\circ - 60^\circ \\ &= 300^\circ \end{aligned}$$

$$\begin{aligned} x &= \frac{300^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 7 \\ &= 36.67 \end{aligned}$$

$$\begin{aligned} \text{(d)} \quad \theta &= 360^\circ - 210^\circ \\ &= 150^\circ \end{aligned}$$

$$\begin{aligned} x &= \frac{150^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 6 \\ &= 15.71 \end{aligned}$$

$$\begin{aligned} \text{17. (a)} \quad \frac{\theta}{360^\circ} &= \frac{11}{2 \times \frac{22}{7} \times 9} \\ &= \frac{7}{36} \\ \theta &= \frac{7}{36} \times 360^\circ \\ &= 70^\circ \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad \frac{\theta}{360^\circ} &= \frac{16.5}{2 \times \frac{22}{7} \times 4.5} \\ &= \frac{7}{12} \\ \theta &= \frac{7}{12} \times 360^\circ \\ &= 210^\circ \end{aligned}$$

$$\begin{aligned} \text{18. (a)} \quad 16.5 &= \frac{90^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times j \\ &= \frac{11}{7} \times j \\ j &= 16.5 \times \frac{7}{11} \\ &= 10.5 \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad 27.5 &= \frac{225^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times j \\ &= \frac{55}{14} \times j \\ j &= 27.5 \times \frac{14}{55} \\ &= 7 \end{aligned}$$

19. (a) Luas sektor bulatan berlorek
Area of the shaded sector
 $= \frac{230^\circ}{360^\circ} \times \frac{22}{7} \times 7^2$
 $= 98.39 \text{ cm}^2$

(b) Luas sektor bulatan berlorek
Area of the shaded sector
 $= \frac{220^\circ}{360^\circ} \times \frac{22}{7} \times 3^2$
 $= 17.29 \text{ cm}^2$

$$\begin{aligned} \text{(c)} \quad \theta &= 360^\circ - 80^\circ \\ &= 280^\circ \end{aligned}$$

Luas sektor bulatan berlorek
Area of the shaded sector
 $= \frac{280^\circ}{360^\circ} \times \frac{22}{7} \times 5^2$
 $= 61.11 \text{ cm}^2$

$$\begin{aligned} \text{(d)} \quad \theta &= 360^\circ - 240^\circ \\ &= 120^\circ \end{aligned}$$

Luas sektor bulatan berlorek
Area of the shaded sector
 $= \frac{120^\circ}{360^\circ} \times \frac{22}{7} \times 6^2$
 $= 37.71 \text{ cm}^2$

$$\begin{aligned} \text{20. (a)} \quad 9\frac{3}{7} &= \frac{\theta}{360^\circ} \times \frac{22}{7} \times 6^2 \\ \theta &= \frac{66}{7} \times 360^\circ \times \frac{7}{22} \times \frac{1}{36} \\ &= 30^\circ \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad 16\frac{1}{2} &= \frac{\theta}{360^\circ} \times \frac{22}{7} \times 3^2 \\ \theta &= \frac{33}{2} \times 360^\circ \times \frac{7}{22} \times \frac{1}{9} \\ &= 210^\circ \end{aligned}$$



$$\begin{aligned}
 21. (a) \quad 49.5 &= \frac{70^\circ}{360^\circ} \times \frac{22}{7} \times j^2 \\
 &= \frac{11}{18} \times j^2 \\
 j^2 &= 49.5 \times \frac{18}{11} \\
 &= 81 \\
 j &= \sqrt{81} \\
 &= 9
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad 66 &= \frac{210^\circ}{360^\circ} \times \frac{22}{7} \times j^2 \\
 &= \frac{11}{6} \times j^2 \\
 j^2 &= 66 \times \frac{6}{11} \\
 &= 36 \\
 j &= \sqrt{36} \\
 &= 6
 \end{aligned}$$

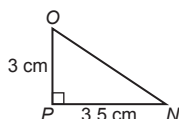
22. (a) Jejari = ON
Radius = ON

Oleh sebab $MP = PN$,
Since $MP = PN$,

$$\begin{aligned}
 PN &= \frac{MN}{2} \\
 &= \frac{7}{2} \\
 &= 3.5 \text{ cm}
 \end{aligned}$$

$$\begin{aligned}
 ON^2 &= OP^2 + PN^2 \\
 &= 3^2 + 3.5^2 \\
 &= 21.25
 \end{aligned}$$

$$\begin{aligned}
 ON &= \sqrt{21.25} \\
 &= 4.61 \text{ cm}
 \end{aligned}$$



Lilitan

Circumference

$$\begin{aligned}
 &= 2\pi j \\
 &= 2 \times 3.142 \times 4.61 \\
 &= 28.97 \text{ cm}
 \end{aligned}$$

(b) Diameter bulatan P = 20 cm
Diameter of circle P = 20 cm

$$\text{Jejari bulatan P} = \frac{20}{2} = 10 \text{ cm}$$

$$\text{Radius of circle P} = \frac{20}{2} = 10 \text{ cm}$$

Diameter bulatan Q = Jejari bulatan P
Diameter of circle Q Radius of circle P
= 10 cm

$$\text{Jejari bulatan Q} = \frac{10}{2} = 5 \text{ cm}$$

$$\text{Radius of circle Q} = \frac{10}{2} = 5 \text{ cm}$$

Maka, diameter bulatan R = 5 cm
Thus, diameter of circle R = 5 cm

(i) Nisbah diameter bulatan R kepada bulatan P
Ratio of the diameter of circle R to circle P
= 5 : 20
= 1 : 4

(ii) Luas bulatan Q = $\frac{22}{7} \times \left(\frac{10}{2}\right)^2 = 78.57 \text{ cm}^2$
Area of circle Q

Luas bulatan R = $\frac{22}{7} \times \left(\frac{5}{2}\right)^2 = 19.64 \text{ cm}^2$
Area of circle R

Beza / Difference = $78.57 \text{ cm}^2 - 19.64 \text{ cm}^2$
= 58.93 cm^2

(c) (i) Nilai sudut terangkum/ Angle subtended
= $\frac{2.4}{6} \times 360^\circ$
= 144°

Luas sektor/ Area of sector

$$\begin{aligned}
 &= \frac{144^\circ}{360^\circ} \times \frac{22}{7} \times 5^2 \\
 &= 31.43 \text{ cm}^2
 \end{aligned}$$

(ii) Jisim satu botol/ Mass of a bottle
= $2.4 \div 3 = 0.8 \text{ kg}$

Jisim lima botol/ Mass of five bottles
= $0.8 \times 5 = 4 \text{ kg}$

Nilai sudut yang terbentuk/ Angle formed
= $\frac{4}{6} \times 360^\circ = 240^\circ$

Panjang lengkok minor/ Length of minor arc

$$\begin{aligned}
 &= \frac{360^\circ - 240^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 5 \\
 &= 10.48 \text{ cm}
 \end{aligned}$$

(d) (i) Perimeter tasik/ Perimeter of the lake
= $OK + KL + LM + MN + NO$
= $7.5 + \left[\frac{(35^\circ + 90^\circ)}{360^\circ} \times 2 \times \frac{22}{7} \times 7.5 \right]$
+ $\frac{7.5}{2} + \left[\frac{90^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times \frac{7.5}{2} \right] + \frac{7.5}{2}$
= $7.5 + 16.37 + 3.75 + 5.89 + 3.75$
= 37.26 m

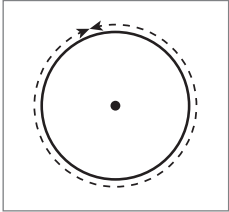
(ii) Luas tasik/ Area of the lake
= Luas sektor KLO – Luas sukuan bulatan MNO
Area of sector KLO – Area of quadrant MNO
= $\left[\frac{(90^\circ + 35^\circ)}{360^\circ} \times \frac{22}{7} \times 7.5^2 \right] - \left[\frac{90^\circ}{360^\circ} \times \frac{22}{7} \times \left(\frac{7.5}{2}\right)^2 \right]$
= $61.38 - 11.05$
= 50.33 m^2

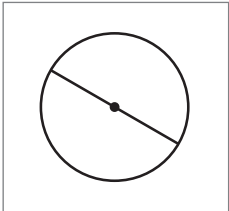
Power PT3

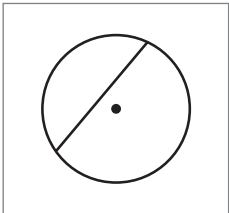
Bahagian A

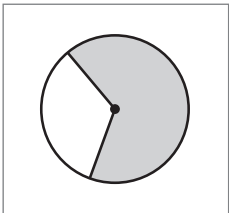
- Jawapan / Answer: **C**
- $\pi \times d = 721$
 $d = \frac{721}{3.142}$
 $= 229.47 \text{ cm}$
Jawapan / Answer: **C**
- Panjang lengkok minor, PQ
The length of the minor arc, PQ
 $= \frac{360^\circ - 262^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 14$
 $= 23.96 \text{ cm}$
Jawapan / Answer: **B**
- $OA = \sqrt{25^2 - 24^2} = 7 \text{ m}$
 $OB = 25 \text{ m}$
Jarak antara A dan B
The distance between A and B
 $= 7 + 25$
 $= 32 \text{ m}$
Jawapan / Answer: **D**

Bahagian B









Perentas
Chord

Sektor major
Major sector

Lilitan
Circumference

Diameter

6.

Diameter (cm)	Luas Area (cm ²)	Lilitan Circumference (cm)
5.6	24.64	17.6
13	132.79	40.86
26	531.14	81.71
100	7 857.14	314.29

Lilitan / Circumference

$$= \frac{22}{7} \times 5.6$$

$$= 17.6$$

Luas / Area

$$= \frac{22}{7} \times \left(\frac{13}{2}\right)^2$$

$$= \frac{22}{7} \times (6.5)^2$$

$$= 132.79$$

Diameter

$$= \frac{81.71}{\frac{22}{7}}$$

$$= 81.71 \times \frac{7}{22}$$

$$= 26$$

Luas / Area

$$= \frac{22}{7} \times \left(\frac{100}{2}\right)^2$$

$$= \frac{22}{7} \times 50^2$$

$$= 7\,857.14$$

Bahagian C

- (a) $RN^2 = 13^2 - 12^2$
 $= 169 - 144$
 $= 25$
 $RN = \sqrt{25}$
 $= 5$
 $RT = 5 \times 2 = 10 \text{ cm}$
(b) Sudut kawasan berlorek
Angle of the shaded region
 $= \frac{60^\circ}{3}$
 $= 20^\circ$
Luas kawasan berlorek
Area of the shaded region
 $= \frac{20^\circ}{360^\circ} \times \frac{22}{7} \times 28^2$
 $= 136.89 \text{ cm}^2$

$$\begin{aligned} \text{(c) (i)} \quad & \frac{22}{7} \times (14)^2 \times \frac{1}{2} \\ &= \frac{11}{7} \times 196 \\ &= 308 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad & \left(\frac{22}{7} \times (28)^2 \times \frac{1}{2} \right) - 308 \\ &= \left(\frac{11}{7} \times 784 \right) - 308 \\ &= 1\,232 - 308 \\ &= 924 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad & 56 + \left(2 \times \frac{22}{7} \times 28 \times \frac{1}{2} \right) \\ &= 56 + 88 \\ &= 144 \text{ m} \end{aligned}$$

$$\begin{aligned} \text{8. (a)} \quad QR &= \sqrt{26^2 - 13^2} + \sqrt{26^2 - 13^2} + 13 + 13 \\ &= \sqrt{507} + \sqrt{507} + 26 \\ &= 22.52 + 22.52 + 26 \\ &= 71.04 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(b) Panjang lengkok } ABC \\ \text{Arc length of } ABC \\ &= \frac{290^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 14 \\ &= 70.89 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{(c) (i) Panjang lengkok } RS \\ \text{Arc length of } RS \\ &= \frac{60^\circ}{360^\circ} \times 2 \times 3.142 \times 5 \\ &= 5.24 \text{ m} \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad \frac{60^\circ}{360^\circ} \times 2 \times 3.142 \times TU &= 13 \\ TU &= 12.41 \\ RU = SV &= 12.41 - 5 \\ &= 7.41 \end{aligned}$$

Maka, perimeter kawasan yang dilitupi cahaya

$$\begin{aligned} \text{Thus, the perimeter of the area covered by the light} \\ &= RS + RU + UV + VS \\ &= 5.24 + 7.41 + 13 + 7.41 \\ &= 33.06 \text{ m} \end{aligned}$$

Power KBAT

$$\begin{aligned} \text{(i) Luas segi empat sama} &= 25 \text{ m}^2 \\ \text{Area of the square} \end{aligned}$$

Maka, panjang sisinya = 5 m
Hence, the length of its side

Jejari semibulatan = 5 m
Radius of the semicircle

$$\begin{aligned} \text{Luas taman / Area of the garden} \\ &= 4(25) + (3.142 \times 5^2) \\ &= 100 + 78.55 \\ &= 178.55 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{(ii) Penambahan / The extension} \\ &= 267.83 - 178.55 \\ &= 89.28 \text{ m}^2 \end{aligned}$$

Luas satu segi empat sama = 25 m²
Area of a square

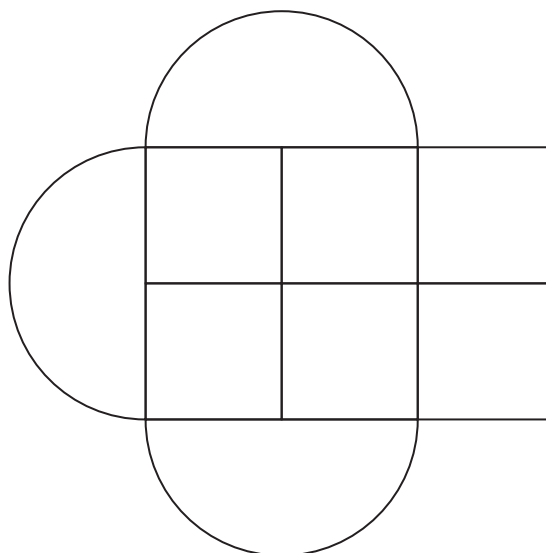
Luas satu semibulatan = 39.28 m²
Area of a semicircle

$$2(25) + 39.28 = 89.28 \text{ m}^2$$

Oleh itu, 2 bahagian segi empat sama dan 1 bahagian semibulatan diperlukan.

Hence, 2 square parts and 1 semicircle part are needed.

(iii)



Jawapan lain yang sesuai diterima.
Other suitable answer is accepted.