11.Circle

Practice Set 42

1. Complete the table below.

Sr. No.	Radius (r)	Diameter (d)	Circumference (c)
(i)	7 cm	----------	----------
(ii)	----------	28 cm	----------
(iii)	----------	----------	616 cm
(iv)	----------	----------	72.6 cm

Solution :

(i) Given: radius (r) = 7 cm , d = ? , c = ?

$d = 2r = 2 \times 7 = 14$ cm

$c = \pi d = \frac{22}{7} \times 14 = 44$ cm

(ii) Given: r = ? , d = 28 cm , c = ?

$r = \frac{d}{2} = \frac{28}{2} = 14$ cm

$c = \pi d = \frac{22}{7} \times 28 = 88$ cm

(iii) Given : r = ? , d = ? , c = 616 cm

$c = \pi d$

$\therefore 616 = \frac{22}{7} \times d$

$\therefore d = \frac{616 \times 7}{22} = 28 \times 7 = 196$ cm

$r = \frac{d}{2} = \frac{196}{2} = 98$ cm

(iv) Given : r = ?, d = ? , c = 72.6 cm

$\therefore c = \pi d$

$\therefore 72.6 = \frac{22}{7} \times d$

$\therefore d = \frac{72.6 \times 7}{22} = 23.1$ cm

$r = \frac{d}{2} = \frac{23.1}{2} = 11.55$ cm

Ans.

Sr. No.	Radius (r)	Diameter (d)	Circumference (c)
(i)	7 cm	14 cm	44 cm
(ii)	14 cm	28 cm	88 cm
(iii)	98 cm	196 cm	616 cm
(iv)	11.55 cm	23.1 cm	72.6 cm

2. If the circumference of a circle is 176 cm, find its radius.

Solution:

Given : Circumference (c) = 176 cm, radius (r) = ?

$c = 2\pi r$

$\therefore 176 = 2 \times \frac{22}{7} \times r$

$\therefore r = \frac{176 \times 7}{2 \times 22} = 4 \times 7 = 28cm$

∴ The radius of the circle is 28 cm.

3. The radius of a circular garden is 56 m. What would it cost to put a 4-round fence around this garden at a rate of 40 rupees per metre ?

Solution:

The radius of a circular garden is 56 m.

The circumference of a circular garden = $2\pi r$

$= 2 \times \frac{22}{7} \times 56 = 2 \times 22 \times 8 = 352m$

∴ The length of the wire required for one-round of fencing is 352m.

∴ The length of the wire required for 4-round of fencing = $352 \times 4 = 1408$ m

The cost of 1 m wire is 40 rupees.

∴ The cost of 1408 m wire = rate × length of the wire

$= 40 \times 1408 = 56320$

∴ The cost of 4-rounds of fencing around the garden is 56320 rupees.

4. The wheel of a bullock cart has a diameter of 1.4m. How many rotations will the wheel complete as the cart travels 1.1 km ?

Solution:

Given : The diameter of wheel = 1.4 m

Travelling distance = 1.1 km = $1.1 \times 1000 = 1100$ m

Circumference of circle = πd

$$= \frac{22}{7} \times 1.4 = 4.4 \text{ m}$$

When the wheel completes one rotation it covers a distance of 1.4 m, (1 rotation = 1 circumference)

Total number of rotations = $\frac{Travelling\ distance}{circumference}$

$= \frac{1100}{4.4} = \frac{11000}{44} = 250$

∴ The wheel completes 250 rotations to cover the distance of 1.1 km.

Practice Set 43

1. Choose the correct option.

If arc AXB and arc AYB are corresponding arcs and m(arc AXB) = 120° then m(arc AYB) = ...

(i) 140° (ii) 60° (iii) 240° (iv) 160°

Solution :

Given : m (arc A × B) = 120^0

The sum of the measures of two corresponding arcs is 360^0.

m (arc AXB) + m(arc AYB) = 360^0

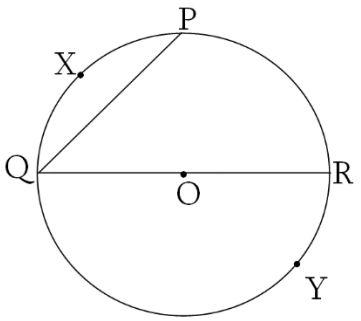
∴ 120^0 + m(arc AYB) = 360^0

∴ m (arc AYB) = 360^0 - 120^0

∴ m (arc AYB) = 240^0

Ans. The correct option is (iii) 240^0.

2. Some arcs are shown in the circle with centre 'O'. Write the names of the minor arcs, major arcs and semicircular arcs from among them.



Ans.

(i) Minor arcs : Arc PXQ , arc PR , arc RY , arc QY , arc QX , arc XP.

(ii) Major arcs : Arc PQR , arc PYQ , arc RQY, arc XQP, arc QRX.

(iii) Semicircular arcs : Arc QPR , arc QYR.

3. In a circle with centre O, the measure of a minor arc is 110°. What is the measure of the major arc PYQ?

Solution:

Given : The measure of a minor arc = 110^0

m(minor arc PXQ) + m (major arc PYQ) = 360^0

$\therefore$ 110^0 + m (major arc PYQ) = 360^0

$\therefore$ m (major arc PYQ) = $360^0 - 110^0 = 250^0$

$\therefore$ The measure of a major arc PYQ is 250^0.

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