Circumference of a Circle Worksheet

Solved Examples on Circumference of a Circle

Example 1: Find the circumference of a circular plate with radius 14 cm.
Solution: Given r = 14 cm
C = 2πr = 2 × 22/7 × 14 = 2 × 22 × 2 = 88 cm

Example 2: A circular clock has a diameter of 21 cm. Find its circumference.
Solution: Given d = 21 cm
C = πd = 22/7 × 21 = 22 × 3 = 66 cm

Example 3: A circular tabletop has a radius of 9 m. Find its circumference in terms of π.
Solution: Given r = 9 cm
C = 2πr = 2 × π × 9 = 18π m

Example 4: The diameter of a bicycle wheel is 70 cm. How many complete revolutions will it make while covering a distance of 2.2 km?
Solution: Given d = 70 cm
Total distance covered = 2.2 km
Circumference of wheel = πd = 22/7 × 70 = 220 cm = 2.2 m
Distance to cover = 2.2 km = 2200 m
Number of revolutions = 2200 ÷ 2.2 = 1000 revolutions

Example 5: A circular garden has a radius of 21 m. Find the cost of fencing it at ₹15 per metre.
Solution: Given r = 21 cm
C = 2πr = 2 × 22/7 × 21 = 132 m
The cost of fencing it at ₹15 per metre
Total cost = 132 × ₹15 = ₹1,980

Example 6: Find the perimeter of a semicircular plot with radius 7 m.
Solution: Given r = 7 cm
Perimeter of semicircle = πr + 2r (curved part + straight diameter)
= 22/7 × 7 + 2 × 7 = 22 + 14 = 36 m

Example 7: Assertion (A): A wire bent into a square of side 22 cm, when re-bent into a circle, will have a radius of 14 cm.
Reason (R): The perimeter of the square equals the circumference of the circle when the same wire is reshaped.
Solution:
Both A and R are true, and R correctly explains A.
Perimeter of square = $4 \times 22 = 88$ cm = circumference of circle.
$2\pi r = 88$
$\Rightarrow r = 88 \times 7/44 = 14$ cm.

Example 8: A circular fountain in a park has a radius of 10.5 m. The municipal council wants to build a walking path around its edge and needs to order railing material sold only in whole metres. How many metres of railing should they order?
Solution: Given $r = 10.5$ cm
$C = 2\pi r = 2 \times 22/7 \times 10.5 = 66$ m
The council should order 66 metres of railing.

Example 9: The minute hand of a wall clock is 10.5 cm long. Find the distance it travels in one complete hour.
Solution: In one hour, the tip of the minute hand traces the full circumference of a circle with radius 10.5 cm.
$C = 2\pi r = 2 \times 22/7 \times 10.5 = 66$ cm

Example 10: The circumference of a circle exceeds its diameter by 16.8 cm. Find the radius of the circle.
Solution:
$C - d = 16.8$
$2\pi r - 2r = 16.8$
$\Rightarrow 2r(\pi - 1) = 16.8$
$\Rightarrow 2r(22/7 - 1) = 16.8$
$2r \times 15/7 = 16.8$
$\Rightarrow r = 16.8 \times 7 / 30 = 3.92$ cm

Example 11: A car has wheels of diameter 80 cm. Find the number of complete revolutions made by a wheel in covering a distance of 1.408 km. (Use $\pi = 22/7$)
Solution:
$C = \pi d = 22/7 \times 80 = 251.43$ cm ≈ 2.5143 m

Distance = 1.408 km = 1408 m
Revolutions = 1408 ÷ 2.5143 ≈ 560 revolutions

Practice Questions on Circumference of a Circle

Q1. What is the circumference of a circle with radius 21 cm? (Use $\pi = 22/7$)
Q2. The diameter of a circle is 3.5 cm. Its circumference (using $\pi = 22/7$) is _____.
Q3. Which formula correctly finds the radius when the circumference C is known?

A. $r = C/\pi$
B. $r = 2\pi C$
C. $r = C/2\pi$
D. $r = \pi C/2$

Q4. If the circumference of a circle is 44 cm, what is its diameter?
Q5. The wheel of a bus has a diameter of 1.4 m. The distance it covers in 100 revolutions is:

A. 440 m
B. 220 m
C. 88 m
D. 140 m

Q6. Two circles have radii in the ratio 2 : 3. Their circumferences are in the ratio:

A. 2 : 3
B. 4 : 9
C. 3 : 2
D. 2 : 9