LESSON: Perimeter and Area

DETAILED ANSWERS

SECTION A (4 × 10 = 40 marks)

1. Choose the correct option:

a) Perimeter of a square:

- Formula: Perimeter = 4 × Side
- = 4 × 7 = **28 cm**
- **Correct Answer:** (ii) 28 cm

b) Formula for the area of a parallelogram:

- **Correct Answer:** (i) Base × Height

c) Circumference of a circle:

- Formula: C = $2\pi r$
- Given, 2πr = 88, solving for r:
- r = $\frac{88}{2\pi}$ = $\frac{88}{6.28}$ = 14 cm
- **Correct Answer:** (ii) 14 cm

d) Area of a triangle:

- Formula: A = $\frac{1}{2} \times Base \times Height$
- A = $\frac{1}{2} \times 8 \times 5 = 20cm^2$
- **Correct Answer:** (ii) 20 cm²

2. Solve the following:

a) **Perimeter and Area of a Rectangular Park**

- Perimeter = $2 \times (Length + Breadth)$

- = 2 × (60 + 40) = 200 m
- Area = Length × Breadth
- = 60 × 40 = 2400 m²

b) **Square's side and perimeter**

- Given Area = 121 cm²
- Side = $\sqrt{121}$ = 11 cm
- Perimeter = 4 × 11 = 44 cm

c) **Conversions**

- 3.5 km² to m² : 3.5 × 10^6 m²
- 1200 cm² to m² : $1200 \div 10^4$ = 0.12 m²

3. Solve the following equations:

a) **Find the breadth of the rectangle**

- Perimeter = 80 cm, Length = 25 cm
- 2 × (25 + B) = 80
- 25 + B = 40 ⟶ B = 15 cm

b) **Circle's circumference and area**

- Circumference = 2πr = 2 × 3.14 × 14 = 87.92 cm
- Area = πr^2 = 3.14 × 14^2 = 615.44 cm²

c) **Find the third side of the triangle**

- Perimeter = 45 cm, sides = 18 cm, 12 cm
- Third side = 45 - (18 + 12) = 15 cm

4. TRUE or FALSE:

a) **False** (Perimeter of a parallelogram is 2 × (Base + Side), not height)

b) **True** (Area is always in square units)

c) **False** (Area = 10 × 4 = 40 cm², not 14 cm²)

d) **True** (Area of circle = 3.14 × 10^2 = 314 cm²)

5. Solve the following problems:

a) **Triangle's area and perimeter**

- Area = $\frac{1}{2} \times 12 \times 7$ = 42 cm²
- Perimeter: Needs side lengths

b) **Area of the veranda**

- Outer dimensions = 8+5 = 10 m, 5+2.5+2.5 = 10 m
- Outer area = 10 × 10 = 100 m²
- Inner area = 8 × 5 = 40 m²
- Veranda area = 100 - 40 = 60 m²

c) **Fencing cost**

- Perimeter = 2 × (50+30) = 160 m
- Cost = 160 × 12 = ₹1920

SECTION B (4 × 10 = 40 marks)

6. Graph-Based Question:

- **Graph drawn separately**
- **Field C has the largest area**

7. Perimeter and Area Calculations:

a) **Path around a garden**

- Outer dimensions = 20+6 = 26 m, 15+6 = 21 m
- Outer area = 26 × 21 = 546 m²
- Inner area = 20 × 15 = 300 m²
- Path area = 546 - 300 = 246 m²

b) **Wire bent into square and circle**

- Square Perimeter = 4 × 25 = 100 cm
- Circle radius = C = 2πr, solve for r

c) **Heron's formula**

- s = $\frac{30+40+50}{2}$ = 60 m
- A = $\sqrt{s(s-a)(s-b)(s-c)}$ = 600 m²

8. Real-Life Application Problems:

a) **Uncovered area**

- Room area = 7 × 4 = 28 m²
- Carpet area = 5 × 3 = 15 m²
- Uncovered = 28 - 15 = 13 m²

b) **Circular park path area**

- Outer circle area - Inner circle area

c) **Swimming pool circumference and area**

- C = $2\pi r$, A = πr^2

9. Compound Shapes & Paths:

a) **Field + semicircle area**

- A = $$lb + \pi r^2$

b) **Path around square park**

- A = (Outer square - Inner square)

c) **Decorative border area**

- Difference of two circles

10. HOTS:

a) **Cost of grass planting**

- A = $\frac{1}{2} \times 24 \times 10$, cost = Area × rate

b) **Fencing cost finds length**

- Solve for missing dimension

c) **Bicycle wheel revolutions**

- Circumference = distance per revolution
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- Total revolutions = $\frac{\text{Distance traveled}}{\text{Circumference of the wheel}}$