

Tender Heart High School, Sec.-33B chd.

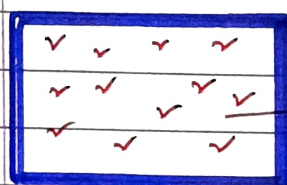
Class: VII

Teacher: Ms. Deepika

Subject: Mathematics

Topic: Chapter-23 (Mensuration)

Perimeter is the length of outer boundary of an object. Area is the space enclosed by a plane figure.



→ Perimeter

→ Area

Now learn all the formulas given below

Plane figure

Perimeter

Area



$$P = 2(l + b)$$

$$A = l \times b$$



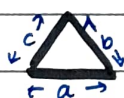
$$P = 4 \times \text{side}$$

$$A = a \times a$$



$$\text{Circumference} = 2\pi r$$

$$A = \pi r^2$$



$$P = a + b + c$$

$$A = \frac{1}{2} \times \text{base} \times \text{height}$$



$$P = 4 \times \text{side}$$

$$A = \frac{1}{2} \times \text{diagonal}_1 \times \text{diagonal}_2$$

Units of perimeter are m/cm/km

Units of Area are m<sup>2</sup>/cm<sup>2</sup>/km<sup>2</sup>

Points to remember:

- 1 km = 1000 m Or 100000 cm
- Hectare, Are are the units of area  
1 Are = 100 m<sup>2</sup> Or 1 dam<sup>2</sup>  
1 Hectare = 10000 m<sup>2</sup> Or 100 ares
- Perimeter =  $\frac{\text{Total cost}}{\text{Cost perm}}$
- Area =  $\frac{\text{Total cost}}{\text{cost per m}^2}$

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Exercise - 23 A

classmate

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Teacher : Ms. Deepthi

Soln 5 radius = 17.5 cm , Circumference = ?

$$C = 2\pi r$$

$$C = 2 \times \frac{22}{7} \times 17.5 = 2 \times \frac{22}{7} \times \frac{355}{20} = 110 \text{ cm}$$

Soln 9 Diameter = 1.6 m

$$\text{radius} = \frac{1.6}{2} = 0.8 \text{ m}$$

Distance covered in 1 revolution =  $2\pi r$

$$= 2 \times \frac{22}{7} \times 0.8$$

$$= \frac{35.2}{7}$$

Number of revolutions =  $\frac{\text{Total distance}}{\text{dist. covered in 1 rev.}}$

$$= \frac{35.2}{\frac{35.2}{7}} = \frac{35.2}{1} \times \frac{7}{35.2} = 70$$

So, wheel of cycle will take **70 revolutions**

Soln 11 No. of rotation = 1000 , Total distance = 1.76 km  
radius = ?

Distance covered in 1 round =  $2\pi r = 2 \times \frac{22}{7} \times r$

$$\therefore 1000 \times 2 \times \frac{22}{7} \times r = 1.76 \text{ km}$$
$$= 1.76 \times 100000 \text{ cm}$$

$$r = \frac{1.76 \times 100000 \times 7}{2 \times 22 \times 1000}$$

$$\boxed{r = 28 \text{ cm}}$$

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Exercise - 23 C

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Sol'n 3 Perimeter of a rectangular plot = 240 m  
length = 63 m, breadth = ?, Area = ?  
 $P = 240 \text{ m}$

$$2(l+b) = 240$$

$$2(63+b) = 240$$

$$63+b = \frac{240}{2} = 120$$

$$b = 120 - 63$$

$$b = 57 \text{ m}$$

$$\text{Area} = l \times b$$

$$= 63 \times 57$$

$$= 3591 \text{ m}^2$$

Sol'n 7 Area of rectangular park = 1560 m<sup>2</sup>

$$\text{breadth} = 24 \text{ m}$$

$$\text{length} = ?$$

$$\text{Cost of fencing at ₹ 22.50 per m} = ?$$

$$\text{length} = \frac{\text{Area of the park}}{\text{breadth}}$$

$$= \frac{1560}{24} = 65$$

$$\text{length} = 65 \text{ m}$$

$$\text{Perimeter} = 2(l+b)$$

$$= 2(65+24)$$

$$= 2 \times 89 = 178 \text{ m}$$

$$\text{Cost of fencing it} = 178 \times 22.50$$

$$= ₹ 4005$$

Sol'n 11 length of a land = 50 m

$$(i) \text{ Area of the plot} = \frac{\text{Total Cost}}{\text{Cost per m}^2} = \frac{20000}{12.50}$$

$$= \frac{20000}{12.5} = 1600 \text{ m}^2$$

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Teacher: <sup>4</sup> Ms. Deepika

$$(ii) \text{ breadth} = \frac{\text{Area}}{\text{length}} = \frac{1600}{50} = 32 \text{ m}$$

$$(iii) \text{ Perimeter} = 2(l+b) \\ = 2(50+32) \\ = 2 \times 82 = 164 \text{ m}$$

Exercise - 23D

Soln 3

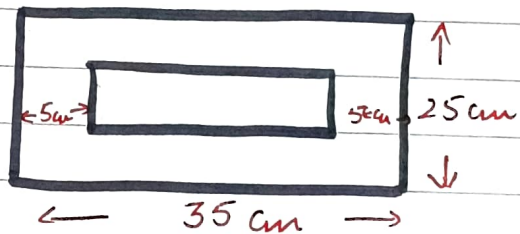
Outer region

$$l = 35 \text{ cm}, b = 25 \text{ cm}$$

Area of outer rectangle =  $l \times b$

$$= 35 \times 25$$

$$= 875 \text{ cm}^2$$



Inner region

$$l = 25 \text{ cm}$$

$$b = 25 \text{ cm} - 10 \text{ cm} = 15 \text{ cm}$$

Area of inner rectangle =  $l \times b$

$$= 25 \times 15 = 375 \text{ cm}^2$$

$$\text{Area of remaining sheet} = 35 \times 25 - 25 \times 15 \\ = 500 \text{ cm}^2$$

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