

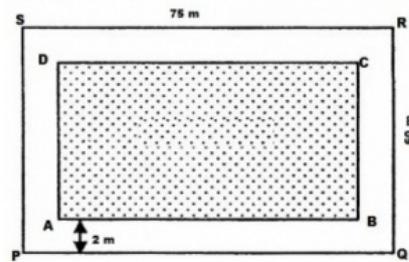


## Exercise 20B

Q1

**Answer :**

Let PQRS be the given grassy plot and ABCD be the inside boundary of the path.



Length = 75 m

Breadth = 60 m

Area of the plot =  $(75 \times 60) \text{ m}^2 = 4500 \text{ m}^2$

Width of the path = 2 m

$\therefore AB = (75 - 2 \times 2) \text{ m} = (75 - 4) \text{ m} = 71 \text{ m}$

$AD = (60 - 2 \times 2) \text{ m} = (60 - 4) \text{ m} = 56 \text{ m}$

Area of rectangle ABCD =  $(71 \times 56) \text{ m}^2 = 3976 \text{ m}^2$

Area of the path = (Area of PQRS - Area of ABCD)  
 $= (4500 - 3976) \text{ m}^2 = 524 \text{ m}^2$

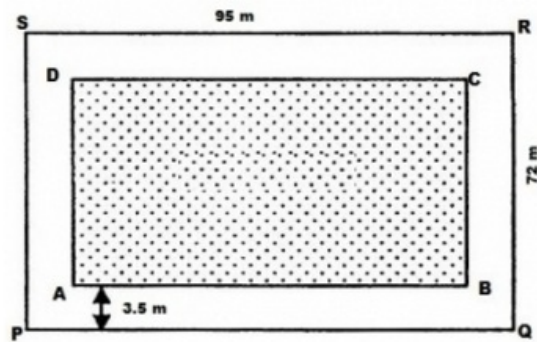
Rate of constructing the path = Rs 125 per  $\text{m}^2$

$\therefore$  Total cost of constructing the path = Rs  $(524 \times 125) = \text{Rs } 65,500$

Q2

**Answer :**

Let PQRS be the given rectangular plot and ABCD be the inside boundary of the path.



Length = 95 m

Breadth = 72 m

Area of the plot =  $(95 \times 72) \text{ m}^2 = 6,840 \text{ m}^2$

Width of the path = 3.5 m

$\therefore AB = (95 - 2 \times 3.5) \text{ m} = (95 - 7) \text{ m} = 88 \text{ m}$

$AD = (72 - 2 \times 3.5) \text{ m} = (72 - 7) \text{ m} = 65 \text{ m}$

Area of the path = (Area PQRS - Area ABCD)  
 $= (6840 - 5720) \text{ m}^2 = 1,120 \text{ m}^2$

Rate of constructing the path = Rs. 80 per  $\text{m}^2$

$\therefore$  Total cost of constructing the path = Rs.  $(1,120 \times 80) = \text{Rs. } 89,600$

Rate of laying the grass on the plot ABCD = Rs. 40 per  $\text{m}^2$

$\therefore$  Total cost of laying the grass on the plot = Rs.  $(5,720 \times 40) = \text{Rs. } 2,28,800$

$\therefore$  Total expenses involved = Rs.  $(89,600 + 2,28,800) = \text{Rs. } 3,18,400$

Q3

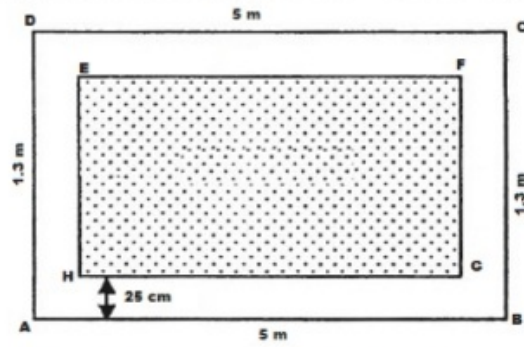
**Answer :**

Let ABCD be the saree and EFGH be the part of saree without border.

Length, AB = 5 m

Breadth, BC = 1.3 m

Width of the border of the saree = 25 cm = 0.25 m



$$\therefore \text{Area of } ABCD = 5 \text{ m} \times 1.3 \text{ m} = 6.5 \text{ m}^2$$

$$\text{Length, GH} = \{5 - (0.25 + 0.25)\} \text{ m} = 4.5 \text{ m}$$

$$\text{Breadth, FG} = \{1.3 - 0.25 + 0.25\} \text{ m} = 0.8 \text{ m}$$

$$\therefore \text{Area of } EFGH = 4.5 \text{ m} \times 0.8 \text{ m} = 3.6 \text{ m}^2$$

$$\text{Area of the border} = \text{Area of } ABCD - \text{Area of } EFGH$$

$$= 6.5 \text{ m}^2 - 3.6 \text{ m}^2$$

$$= 2.9 \text{ m}^2 = 29000 \text{ cm}^2 \quad [\text{since } 1 \text{ m}^2 = 10000 \text{ cm}^2]$$

$$\text{Rate of printing the border} = \text{Rs } 1 \text{ per } 10 \text{ cm}^2$$

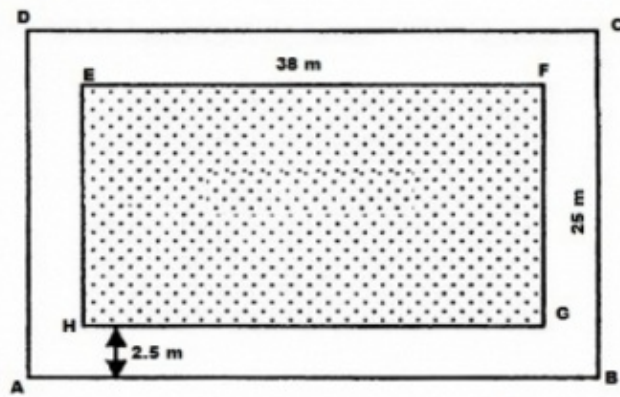
$$\therefore \text{Total cost of printing the border} = \text{Rs } \left( \frac{1 \times 29000}{10} \right)$$
$$= \text{Rs } 2900$$

Q4

**Answer :**

$$\text{Length, EF} = 38 \text{ m}$$

$$\text{Breadth, FG} = 25 \text{ m}$$



$$\therefore \text{Area of EFGH} = 38 \text{ m} \times 25 \text{ m} = 950 \text{ m}^2$$

$$\text{Length, AB} = (38 + 2.5 + 2.5) \text{ m} = 43 \text{ m}$$

$$\text{Breadth, BC} = (25 + 2.5 + 2.5) \text{ m} = 30 \text{ m}$$

$$\therefore \text{Area of ABCD} = 43 \text{ m} \times 30 \text{ m} = 1290 \text{ m}^2$$

$$\begin{aligned} \text{Area of the path} &= \text{Area of ABCD} - \text{Area of PQRS} \\ &= 1290 \text{ m}^2 - 950 \text{ m}^2 \\ &= 340 \text{ m}^2 \end{aligned}$$

$$\text{Rate of gravelling the path} = \text{Rs } 120 \text{ per m}^2$$

$$\begin{aligned} \therefore \text{Total cost of gravelling the path} &= \text{Rs } (120 \times 340) \\ &= \text{Rs } 40800 \end{aligned}$$

Q5

**Answer :**

Let EFGH denote the floor of the room.

The white region represents the floor of the 1.25 m verandah.

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