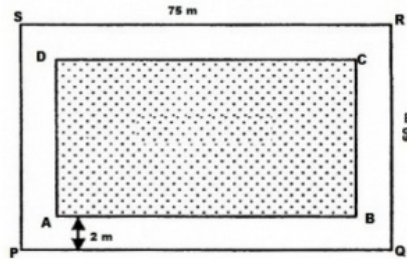Exercise 20B

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 × 60) m^2 = 4500 m^2

Width of the path = 2 m

∴ AB = (75 - 2 × 2) m = (75 - 4) m =71 m

AD = (60 - 2 × 2) m = (60 - 4) m = 56 m

Area of rectangle ABCD = (71 x 56) m^2 = 3976 m^2

Area of the path = (Area of PQRS - Area of ABCD)

= (4500 - 3976) m^2 = 524 m^2
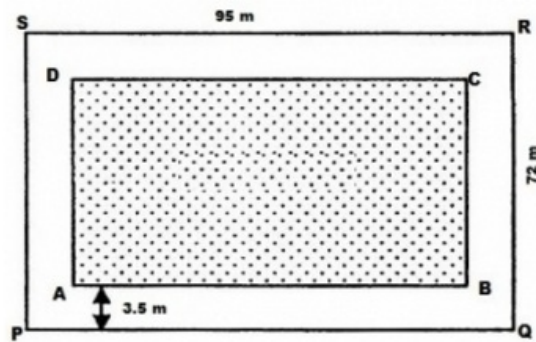
Rate of constructing the path = Rs 125 per m^2

∴ Total cost of constructing the path = Rs (524 × 125) = 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 × 72) m² = 6,840 m²

Width of the path = 3.5 m

∴ AB = (95 - 2 × 3.5) m = (95 - 7) m = 88 m

AD = (72 - 2 × 3.5) m = (72 - 7) m = 65 m

Area of the path = (Area PQRS - Area ABCD)

                    = (6840 - 5720) m² = 1,120 m²

Rate of constructing the path = Rs. 80 per m²

∴ Total cost of constructing the path = Rs. (1,120 × 80) = Rs. 89,600

Rate of laying the grass on the plot ABCD = Rs. 40 per m²

∴ Total cost of laying the grass on the plot = Rs. (5,720 × 40) = Rs. 2,28,800

∴ Total expenses involved = Rs. (89,600 + 2,28,800) = Rs. 3,18,400
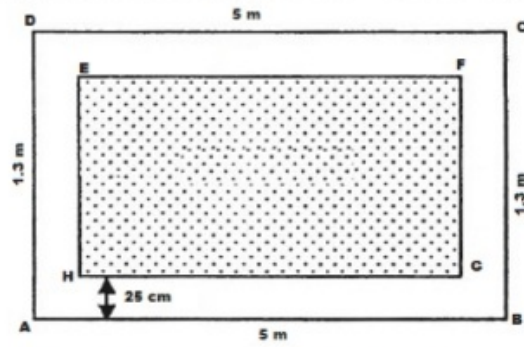
Q3
Answer :

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

∴ Area of ABCD = 5 m × 1.3 m = 6.5 m^2

Length, GH = {5 -(0.25 + 0.25} m = 4.5 m

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

∴ Area of EFGH = 4.5 m × .8 m = 3.6 m^2

Area of the border = Area of ABCD − Area of EFGH

$\qquad$ = 6.5 m^2 − 3.6 m^2

$\qquad$ = 2.9 m^2 = 29000 cm^2 $\quad$ [since 1 m^2 = 10000 cm^2]

Rate of printing the border = Rs 1 per 10 cm^2

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

$\qquad$ = Rs 2900

Q4

Answer :

Length, EF = 38 m

Breadth, FG = 25 m
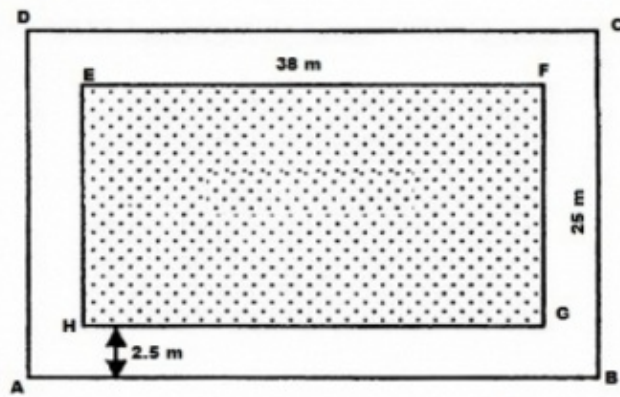
∴ Area of EFGH = 38 m × 25 m = 950 m²

Length, AB = (38 + 2.5 + 2.5) m = 43 m
Breadth, BC = (25 + 2.5 + 2.5) m = 30 m
∴ Area of ABCD = 43 m × 30 m = 1290 m²

Area of the path = Area of ABCD − Area of PQRS
$$= 1290 \text{ m}^2 - 950 \text{ m}^2$$
$$= 340 \text{ m}^2$$
Rate of gravelling the path = Rs 120 per m²

∴ Total cost of gravelling the path = Rs (120 × 340)
$$= \text{Rs } 40800$$

Q5
Answer :

Let EFGH denote the floor of the room.
The white region represents the floor of the 1.25 m verandah.

********** END *********