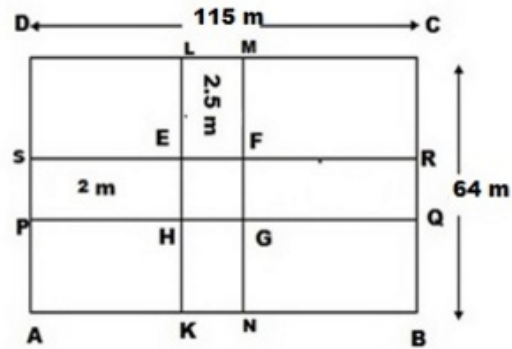




Exercise 20B



Length of the rectangular field, $CD = 115 \text{ m}$

Breadth of the rectangular field, $BC = 64 \text{ m}$

\therefore Area of the rectangular lawn $ABCD = 115 \text{ m} \times 64 \text{ m} = 7360 \text{ m}^2$

Area of the road $PQRS = 115 \text{ m} \times 2 \text{ m} = 230 \text{ m}^2$

Area of the road $KLMN = 64 \text{ m} \times 2.5 \text{ m} = 160 \text{ m}^2$

Clearly, the area of $EFGH$ is common to both the two roads.

\therefore Area of $EFGH = 2 \text{ m} \times 2.5 \text{ m} = 5 \text{ m}^2$

\therefore Area of the roads = Area ($KLMN$) + Area ($PQRS$) – Area ($EFGH$)
 $= (230 \text{ m}^2 + 160 \text{ m}^2) - 5 \text{ m}^2 = 385 \text{ m}^2$

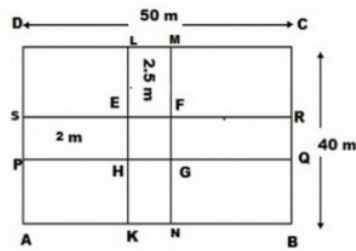
Rate of gravelling the roads = Rs 60 per m^2

\therefore Total cost of gravelling the roads = Rs (385×60)
 $= \text{Rs } 23,100$

Q13

Answer :

Let ABCD be the rectangular field and KLMN and PQRS be the two rectangular roads with width 2.5 m and 2 m, respectively.



Length of the rectangular field $CD = 50$ m

Breadth of the rectangular field $BC = 40$ m

\therefore Area of the rectangular field $ABCD = 50 \text{ m} \times 40 \text{ m} = 2000 \text{ m}^2$

Area of road $KLMN = 40 \text{ m} \times 2.5 \text{ m} = 100 \text{ m}^2$

Area of road $PQRS = 50 \text{ m} \times 2 \text{ m} = 100 \text{ m}^2$

Clearly, area of $EFGH$ is common to both the two roads.

\therefore Area of $EFGH = 2.5 \text{ m} \times 2 \text{ m} = 5 \text{ m}^2$

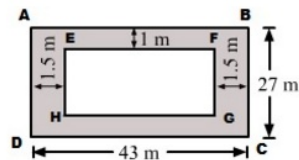
\therefore Area of the roads = Area ($KLMN$) + Area ($PQRS$) – Area ($EFGH$)
 $= (100 \text{ m}^2 + 100 \text{ m}^2) - 5 \text{ m}^2 = 195 \text{ m}^2$

Area of the remaining portion of the field = Area of the rectangular field ($ABCD$) – Area of the roads
 $= (2000 - 195) \text{ m}^2$
 $= 1805 \text{ m}^2$

Q14

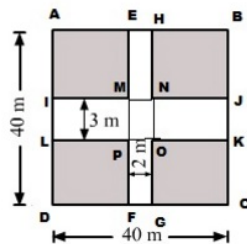
Answer :

(i) Complete the rectangle as shown below:



Area of the shaded region = [Area of rectangle $ABCD$ - Area of rectangle $EFGH$] sq. units
 $= [(43 \text{ m} \times 27 \text{ m}) - \{(43 - 2 \times 1.5) \text{ m} \times (27 - 1 \times 2) \text{ m}\}]$
 $= [(43 \text{ m} \times 27 \text{ m}) - \{40 \text{ m} \times 25 \text{ m}\}]$
 $= 1161 \text{ m}^2 - 1000 \text{ m}^2$
 $= 161 \text{ m}^2$

(ii) Complete the rectangle as shown below:



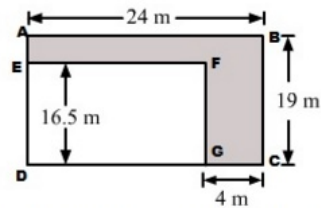
Area of the shaded region = [Area of square $ABCD$ - {(Area of $EFGH$) + (Area of $IJKL$) - (Area of $MNOP$)}] sq. units

$$\begin{aligned}
 &= [(40 \times 40) - \{(40 \times 2) + (40 \times 3) - (2 \times 3)\}] \text{ m}^2 \\
 &= [1600 - \{(80 + 120 - 6)\} \text{ m}^2 \\
 &= [1600 - 194] \text{ m}^2 \\
 &= 1406 \text{ m}^2
 \end{aligned}$$

Q15

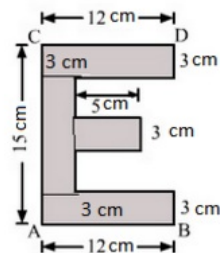
Answer :

(i) Complete the rectangle as shown below:



$$\begin{aligned}
 \text{Area of the shaded region} &= [\text{Area of rectangle ABCD} - \text{Area of rectangle EFGD}] \text{ sq. units} \\
 &= [(AB \times BC) - (DG \times GF)] \text{ m}^2 \\
 &= [(24 \text{ m} \times 19 \text{ m}) - \{(24 - 4) \text{ m} \times 16.5 \text{ m}\}] \\
 &= [(24 \text{ m} \times 19 \text{ m}) - (20 \text{ m} \times 16.5 \text{ m})] \\
 &= (456 - 330) \text{ m}^2 = 126 \text{ m}^2
 \end{aligned}$$

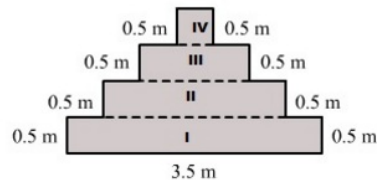
(ii) Complete the rectangle by drawing lines as shown below:



$$\begin{aligned}
 \text{Area of the shaded region} &= \{(12 \times 3) + (12 \times 3) + (5 \times 3) + \{(15 - 3 - 3) \times 3\}\} \text{ cm}^2 \\
 &= \{36 + 36 + 15 + 27\} \text{ cm}^2 \\
 &= 114 \text{ cm}^2
 \end{aligned}$$

Q16

Divide the given figure in four parts shown below:



Given:

Width of each part = 0.5 m

Now, we have to find the length of each part.

Length of part I = 3.5 m

Length of part II = (3.5 - 0.5 - 0.5) m = 2.5 m

Length of part III = (2.5 - 0.5 - 0.5) = 1.5 m

Length of part IV = (1.5 - 0.5 - 0.5) = 0.5 m

∴ Area of the shaded region = [Area of part (I) + Area of part (II) + Area of part (III) + Area of part (IV)] sq. units

$$\begin{aligned}
 &= [(3.5 \times 0.5) + (2.5 \times 0.5) + (1.5 \times 0.5) + (0.5 \times 0.5)] \text{ m}^2 \\
 &= [1.75 + 1.25 + 0.75 + 0.25] \text{ m}^2 \\
 &= 4 \text{ m}^2
 \end{aligned}$$

***** END *****