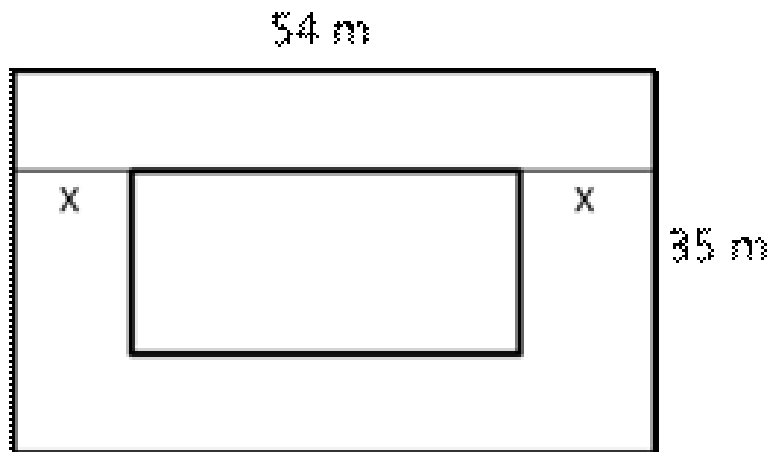




### Exercise 17B

Question 14:

Let the length and breadth of a rectangular garden be  $9x$  and  $5x$ .



Then, area of garden =  $(9x \times 5x) \text{ m}^2 = 45x^2 \text{ m}^2$

Length of park excluding the path =  $(9x - 7) \text{ m}$

Breadth of the park excluding the path =  $(5x - 7) \text{ m}$

Area of the park excluding the path =  $(9x - 7)(5x - 7)$

$$\text{Area of the path} = 45x^2 - (9x - 7)(5x - 7)$$

$$= 45x^2 - 45x^2 + 63x + 35x - 49$$

$$= 63x + 35x - 49$$

$$= (98x - 49) \text{ m}^2$$

$$(98x - 49) = 1911$$

$$98x = 1911 + 49$$

$$\Rightarrow 98x = 1960 \Rightarrow x = \frac{1960}{98} = 20 \text{ m}$$

Length =  $9x = 9 \times 20 = 180 \text{ m}$

Breadth =  $5x = 5 \times 20 = 100 \text{ m}$

Hence, length = 180 m and breadth = 100 m

Question 15:

Area of carpet =  $(4.9 - 0.5)(3.5 - 0.5) \text{ m}^2$

$= 4.4 \times 3.0 = 13.2 \text{ m}^2$

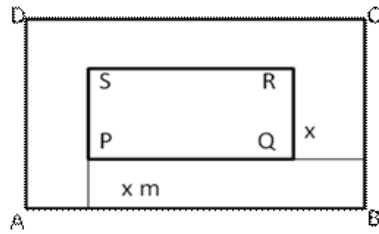
Length of the carpet =  $13.2 / 0.80 \text{ m} = 16.5 \text{ m}$

Cost of carpet = Rs. 40 per meter

Cost of 16.5 m carpet = Rs.  $(40 \times 16.5) = \text{Rs. } 660$

Question 16:

Let the width of the carpet =  $x$  meter



$$\text{Area of floor ABCD} = (8 \times 5) \text{ m}^2$$

$$\text{Area of floor PQRS without border}$$

$$= (8 - 2x)(5 - 2x)$$

$$= 40 - 16x - 10x + 4x^2$$

$$= 40 - 26x + 4x^2$$

$$\text{Area of border} = \text{Area of floor ABCD} - \text{Area of floor PQRS}$$

$$= [40 - (40 - 26x + 4x^2)] \text{ m}^2$$

$$= [40 - 40 + 26x - 4x^2] \text{ m}^2$$

$$= (26x - 4x^2) \text{ m}^2$$

$$\therefore (26x - 4x^2) = 12$$

$$\Rightarrow 26x - 4x^2 - 12 = 0$$

$$\Rightarrow -4x^2 + 26x - 12 = 0$$

$$\Rightarrow 2x^2 - 13x + 6 = 0$$

$$\Rightarrow 2x^2 - 12x - x - 6 = 0$$

$$\Rightarrow 2x(x - 6) - 1(x - 6) = 0$$

$$\Rightarrow (2x - 1)(x - 6) = 0$$

$$\Rightarrow x = \frac{1}{2} \text{ or } x = 6$$

$$\text{Width} = \frac{1}{2} \text{ m} = 0.5 \text{ m} \left[ \begin{array}{l} \text{Neglect } x = 6 \text{ because} \\ \text{width is not more than breadth} \end{array} \right]$$

$$\text{Width} = (0.5 \times 100) \text{ cm} = 50 \text{ cm}$$

\*\*\*\*\* END \*\*\*\*\*