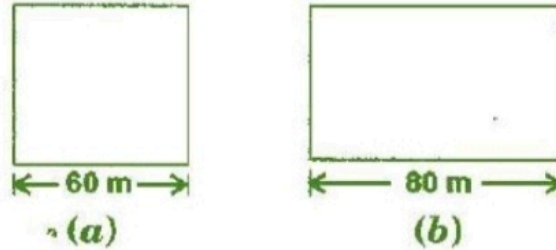


Question 1:

A square and a rectangular field with measurements as given in the figure have the same perimeter. Which field has a larger area?



Answer 1:

Given: The side of a square = 60 m

And the length of rectangular field = 80 m

According to question,

Perimeter of rectangular field = Perimeter of square field

$$\Rightarrow 2(l + b) = 4 \times \text{side}$$

$$\Rightarrow 2(80 + b) = 4 \times 60$$

$$\Rightarrow 160 + 2b = 240$$

$$\Rightarrow 2b = 240 - 160$$

$$\Rightarrow 2b = 80$$

$$\Rightarrow b = 40 \text{ m}$$

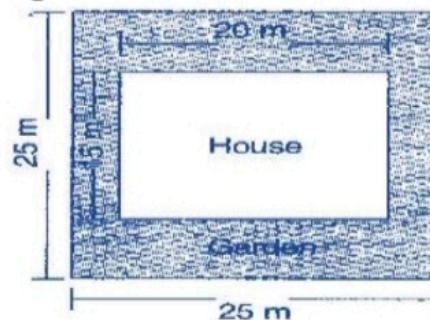
Now Area of Square field = $(\text{Side})^2 = (60)^2 = 3600 \text{ m}^2$

And Area of Rectangular field = length \times breadth = $80 \times 40 = 3200 \text{ m}^2$

Hence, area of square field is larger.

Question 2:

Mrs. Kaushik has a square plot with the measurement as shown in the figure. She wants to construct a house in the middle of the plot. A garden is developed around the house. Find the total cost of developing a garden around the house at the rate of ₹ 55 per m^2 .



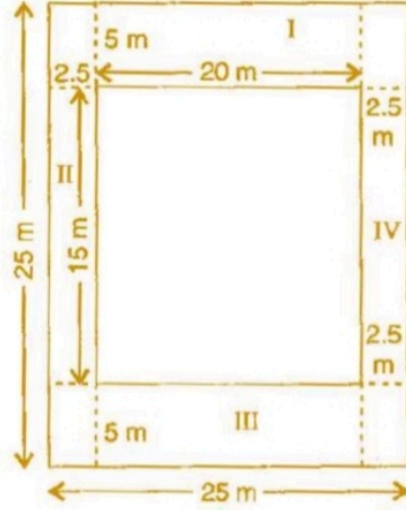
Answer 2:

Side of a square plot = 25 m

$$\therefore \text{Area of square plot} = (\text{Side})^2 = (25)^2 = 625 \text{ m}^2$$

Length of the house = 20 m and

Breadth of the house = 15 m



∴ Area of the house = length x breadth = $20 \times 15 = 300 \text{ m}^2$

Area of garden = Area of square plot - Area of house
 $= 625 - 300 = 325 \text{ m}^2$

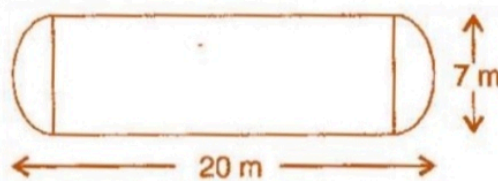
∴ Cost of developing the garden per sq. m = ₹ 55

∴ Cost of developing the garden 325 sq. m = ₹ 55×325
 $= ₹ 17,875$

Hence total cost of developing a garden around is ₹ 17,875.

Question 3:

The shape of a garden is rectangular in the middle and semi-circular at the ends as shown in the diagram. Find the area and the perimeter of this garden [Length of rectangle is 20 - (3.5 + 3.5 meters)]



2

Answer 3:

Given: Total length = 20 m

Diameter of semi circle = 7 m

∴ Radius of semi circle = $\frac{7}{2} = 3.5 \text{ m}$

Length of rectangular field = $20 - (3.5 + 3.5) = 20 - 7 = 13 \text{ m}$

Breadth of the rectangular field = 7 m

∴ Area of rectangular field = $l \times b = 13 \times 7 = 91 \text{ m}^2$

Area of two semi circles = $2 \times \frac{1}{2} \pi r^2 = 2 \times \frac{1}{2} \times \frac{22}{7} \times 3.5 \times 3.5 = 38.5 \text{ m}^2$

Area of garden = $91 + 38.5 = 129.5 \text{ m}^2$

Now Perimeter of two semi circles = $2 \times \pi r = 2 \times \frac{22}{7} \times 3.5 = 22 \text{ m}$

And Perimeter of garden = $22 + 13 + 13 = 48 \text{ m}$

Question 4:

A flooring tile has the shape of a parallelogram whose base is 24 cm and the corresponding height is 10 cm. How many such tiles are required to cover a floor of area 1080 m²? [If required you can split the tiles in whatever way you want to fill up the corners]

Answer 4:

Given: Base of flooring tile = 24 cm = 0.24 m

Corresponding height of a flooring tile = 10 cm = 0.10 m

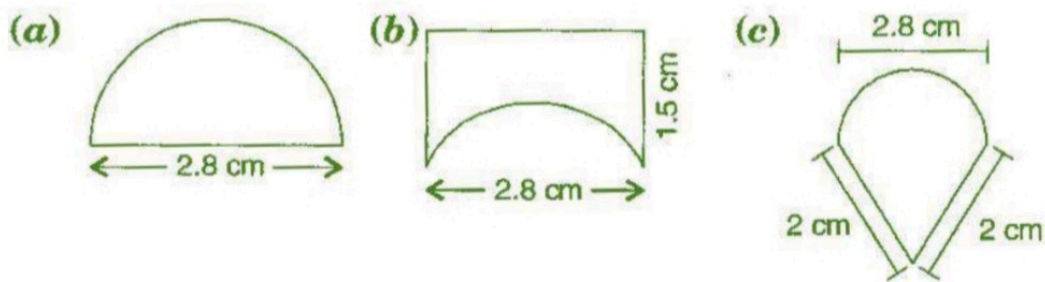
Now Area of flooring tile = Base x Altitude = 0.24 x 0.10 = 0.024 m²

$$\begin{aligned}\therefore \text{Number of tiles required to cover the floor} &= \frac{\text{Area of floor}}{\text{Area of one tile}} \\ &= \frac{1080}{0.024} \\ &= 45000 \text{ tiles}\end{aligned}$$

Hence 45000 tiles are required to cover the floor.

Question 5:

An ant is moving around a few food pieces of different shapes scattered on the floor. For which food-piece would the ant have to take a longer round? Remember, circumference of a circle can be obtained by using the expression $c = 2\pi r$, where r is the radius of the circle.

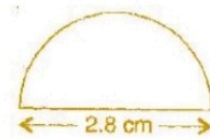


Answer 5:

(a) Radius = $\frac{\text{Diameter}}{2} = \frac{2.8}{2} = 1.4$ cm

Circumference of semi circle = $\pi r = \frac{22}{7} \times 1.4 = 4.4$ cm

Total distance covered by the ant = Circumference of semi circle + Diameter
= 4.4 + 2.8 = 7.2 cm

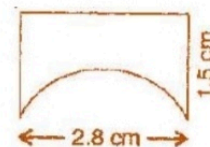


(b) Diameter of semi circle = 2.8 cm

\therefore Radius = $\frac{\text{Diameter}}{2} = \frac{2.8}{2} = 1.4$ cm

Circumference of semi circle = $\pi r = \frac{22}{7} \times 1.4 = 4.4$ cm

Total distance covered by the ant = 1.5 + 2.8 + 1.5 + 4.4 = 10.2 cm

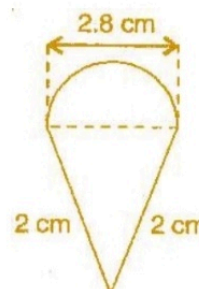


(c) Diameter of semi circle = 2.8 cm

\therefore Radius = $\frac{\text{Diameter}}{2} = \frac{2.8}{2} = 1.4$ cm

Circumference of semi circle = $\pi r = \frac{22}{7} \times 1.4 = 4.4$ cm

Total distance covered by the ant = 2 + 2 + 4.4 = 8.4 cm



Hence for figure (b) food piece, the ant would take a longer round.