

CHAPTER 19

PERIMETER AND AREA OF 2-D SHAPES

More Questions for Practice

- Find the *area* (A) and the *perimeter* (P) of the rectangle whose dimensions are as follows:
(a) $l = 10$ cm, $b = 4$ cm (b) $l = 7.5$ m, $b = 3$ m
(c) $l = 1$ cm, $b = 5$ mm (d) $l = 2.2$ m, $b = 0.1$ m
- Find the *area* (A) and the *perimeter* (P) of the square whose side measures are:
(a) 15 cm (b) 20 cm
- Find the *area* (A) and the *perimeter* (P) of each of the following figures:

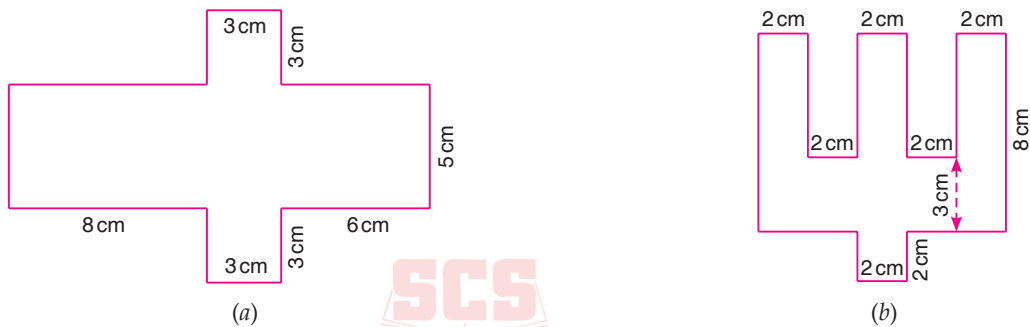


Fig. 19.1

- The width of a cloth is 170 cm. Calculate the length of the cloth required to make 25 diapers, if each diaper requires a piece of cloth of size 50 cm by 17 cm.
- A corridor of a school is 8 m long and 6 m wide. It is to be covered with canvas sheets. If the canvas sheets are available in the size 2 m by 1 m, find the cost of canvas sheets required to cover the corridor at the rate of ₹ 8 per sheet.
- Find the area of the shaded region in each of the following figures:

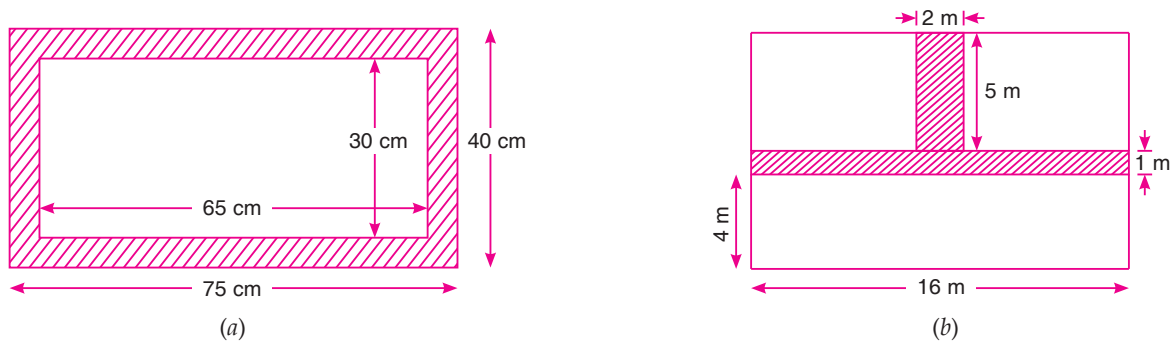


Fig. 19.2

7. There is a rectangular field of size 84 m by 37 m. Three roads, each of width 4 m, pass through the field such that two roads are parallel to the length of the field and one is parallel to its breadth. Calculate
- the area of the field covered by the three roads.
 - the area of the remaining field.
8. A 3.5 m wide path runs along the inside boundary of a square field whose side is 73 m. The path is to be covered with red gravel and the rest of the field is to be manured. Find the total expenses involved if the cost of covering the path with red gravel is ₹ 2.50 per sq m and that of manuring the field is ₹ 1.50 per sq m.
9. Ashutosh has a rectangular field of length 96 m and breadth 45 m. In it, he wants to make a garden 8 m long and 5 m broad in one of the corners and, in another corner, he wants to grow flowers in three flower beds, each of size 4 m by 1.5 m. The remaining part of the field is to be manured. Find the cost of manuring at the rate of ₹ 2.50 per *are* ($1 \text{ are} = 100 \text{ sq m}$).
10. Through a rectangular field of dimensions 90 m \times 60 m, two roads are constructed which are parallel to the two sides and cut each other at right angles through the centre of the field. If the width of each road is 3 m, find
- the area covered by the roads.
 - the cost of constructing the roads at the rate of ₹ 110 per sq metre.
11. It is desired to pave a rectangular courtyard of length 8 m 5 dm 5 cm and width 5 m 2 dm 5 cm with square tiles of the same size. Find the largest size of the tile that can be used to cover the courtyard so that there is no need to break any tile. What is the required number of such tiles?
12. The area of a rectangular field is calculated to be 250 sq m when its sides are measured with a faulty metre rod. If that rod is actually 0.96 metre long, find the correct area of the field.
13. Aslam has a rectangular field of length 60 m and a square field of side 50 m. Both these fields have the same perimeter. If in both the fields he plants a mango tree in each one square metre, find the ratio of the number of trees planted in the two fields.
14. A path 2.5 m wide runs inside along the boundary of a square field whose side is 65 m. Find the area of the path. Also, find the cost of manuring the rest of the field at the rate of ₹ 10 per sq m.
15. A painting is painted on a cardboard 8 cm long and 5 cm wide such that there is a margin of 1.5 cm along each of its sides. Find the total area of the margin.
16. The side of a square flower bed is 1.8 m. It is enlarged by digging a strip 20 cm wide all around it. Find:
- the area of the enlarged flower bed.
 - the increase in area of the flower bed.
17. A poster of size 20 cm by 16 cm is pasted on a sheet of cardboard such that there is a margin of 3.5 cm along each side of the poster. Find the total area of the margin. Also, find the cost of the cardboard used at the rate of ₹ 2 per sq cm.

18. There is a rectangular field of size 94 m by 32 m. Three roads each of width 2 m pass through the field such that two roads are parallel to the breadth of the field and the third is parallel to the length. Calculate:
- the area of the field covered by the three roads.
 - the area of the field not covered by the roads.

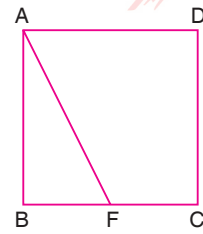


Fig. 19.3

19. In Fig. 19.3, ABCD is a square of side 6 cm. F is a point on BC such that the area of the triangle ABF is one-third of the area of the square. Find the length of FC.
20. Show that the area of an equilateral triangle with side ' $2a$ ' cm is $\sqrt{3}a^2$ sq cm.
21. The base of an isosceles triangle is 16 cm. If its perimeter is 36 cm, find its area.
22. A triangular field is in the shape of an isosceles triangle. The altitude and the base are in the ratio 6 : 5. If it costs ₹ 5250 at the rate of ₹ 350 per hectare to grow some crops in it, find the dimensions of the field.
23. A wire when bent in the form of a square encloses an area 484 sq cm. If the same wire is bent to form a circle, what will be the radius of the circle so formed?
24. The sum of the diameters of two circles is 2.8 m and the difference of their circumferences is 0.88 m. Find the radii of the two circles.
25. The radii of two circles are 19 cm and 9 cm respectively. Find the radius and the circumference of a circle which has its circumference equal to the sum of the circumferences of the two circles.

26. Two circles are drawn inside a bigger circle with diameters $\frac{2}{3}rd$ and $\frac{1}{3}rd$ of the diameter of the bigger circle (Fig. 19.4).

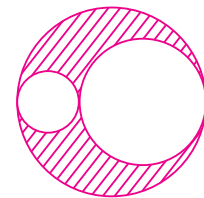


Fig. 19.4

- Find the area of the shaded portion, if the diameter of the bigger circle is 18 cm.
27. The diameters of the front and rear wheels of a tractor are 80 cm and 2 m respectively. Find the number of revolutions that the rear wheel will make to cover a distance in which the front wheel makes 1400 revolutions.
28. The area of a circular ring enclosed between two concentric circles is 286 sq cm. Find the radii of the two circles, given that their difference is 7 cm.

ANSWERS

- (a) $A = 40$ sq cm; $P = 28$ cm (b) $A = 22.5$ sq m; $P = 21$ m (c) $A = 0.5$ sq cm; $P = 3$ cm
(d) $A = 0.22$ sq m; $P = 4.6$ m
- (a) $A = 225$ sq cm; $P = 60$ cm (b) $A = 400$ sq cm; $P = 80$ cm
- (a) $A = 103$ sq cm; $P = 56$ cm (b) $A = 64$ sq cm; $P = 60$ cm

4. 125 cm 5. ₹ 192 6. (a) 1050 sq m (b) 26 sq m
7. (a) 788 sq m (b) 2320 sq m 8. ₹ 8966.50 9. ₹ 106.55 10. (a) 441 sq m (b) ₹ 48510
11. 15 cm; 1995 tiles 12. 230.4 sq m 13. 24 : 25 14. 625 sq m; ₹ 36000
15. 30 sq cm 16. (i) 4.84 sq m (ii) 1.60 sq m 17. 301 sq cm, ₹ 1242
18. (i) 308 sq m (ii) 2700 sq m 19. 2 cm 21. 48 sq cm
22. Base = 500 m, altitude = 600 m 23. 14 cm 24. 77 cm; 63 cm
25. 28 cm; 176 cm 26. 36π sq cm 27. 560 revolutions
28. 10 cm; 3 cm.



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