

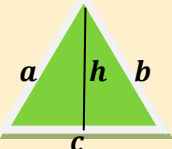

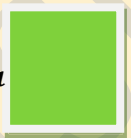
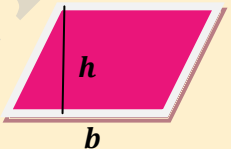
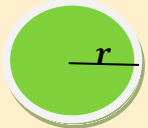
General instructions for Students: Whatever be the notes provided, everything must be copied in the Mathematics copy and then do the HOMEWORK in the same copy.

CLASS – 8th

MATHEMATICS

18. MENSURATION (PART – I)

Area and perimeter of some plane figures

<i>Name</i>	<i>Plane Figures</i>	<i>Area</i>	<i>Perimeter</i>
<i>Triangle</i>		$\frac{1}{2}bh$	$a + b + c$
<i>Rectangle</i>		$l \times b$	$2(l + b)$
<i>Square</i>		a^2	$4a$
<i>Parallelogram</i>		$b \times h$	$2(a + b)$
<i>Circle</i>		πr^2	$2\pi r$

EXERCISE – 18.1

2. A rectangle is 16 m by 9 m. Find a side of a square whose area equals the area of the rectangle. By how much does the perimeter of the rectangle exceed the perimeter of the square.

Solution : Area of rectangle = 16×9

$$\Rightarrow \text{Area of square} = 16 \times 9 \quad \{ \text{Area of rectangle} = \text{Area of square} \}$$

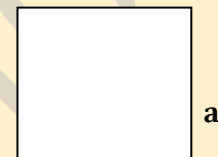
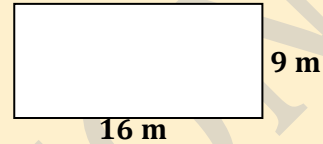
$$\Rightarrow a^2 = 144 \Rightarrow a = 12 \text{ m}$$

Now, perimeter of rectangle = $2(l + b)$

$$= 2(16 + 9) = 50 \text{ m}$$

$$\text{perimeter of square} = 4a = 4 \times 12 = 48 \text{ m}$$

$$(50 - 48) \text{ cm} = 2 \text{ m exceed } \text{Ans.}$$

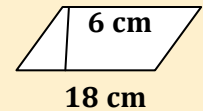
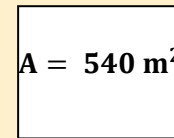


5. A flooring tile has a shape of parallelogram whose base is 18 cm and the height is 6 cm.

How many such tiles are required to cover a floor of area 540 m^2 .

Solution : Base of a tile = 18 cm = 0.18 m Height = 6 cm = 0.06 m

$$\text{No. of tiles} = \frac{\text{Area of the floor}}{\text{Area of a tile}} = \frac{540}{0.18 \times 0.06} = 50000 \text{ tiles}$$

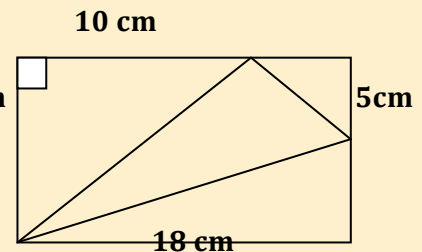


11. From the figure, ABCD is a rectangle. Find the area of shaded region.

Solution : Area of a shaded region =

$$18 \times 12 - \left(\frac{1}{2} \times 12 \times 10 \right) + \left\{ \left(\frac{1}{2} \times 18 \times 7 \right) + \left(\frac{1}{2} \times 8 \times 5 \right) \right\}$$

$$= 216 - (60 + 63 + 20) = 216 - 143 = 73 \text{ cm}^2 \quad \text{Ans.}$$

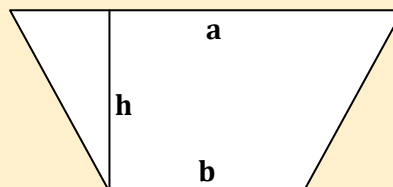


HOMEWORK

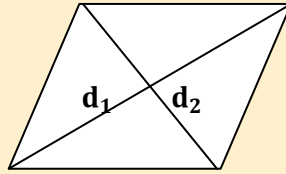
EXERCISE – 18.1

QUESTION NUMBERS : 1, 4, 8, 10 and 12

Area of trapezium = $\frac{1}{2} h (a + b)$



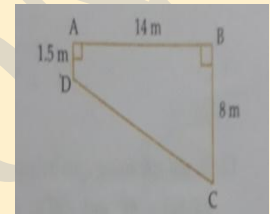
Area of rhombus = $\frac{1}{2}d_1d_2$



EXERCISE – 18.2

2. The cross – section ABCD of a swimming pool is a trapezium. Its width AB = 14 m, depth at the shallow end is 1.5 m and at the deep end is 8 m.

Find the area of the cross – section.



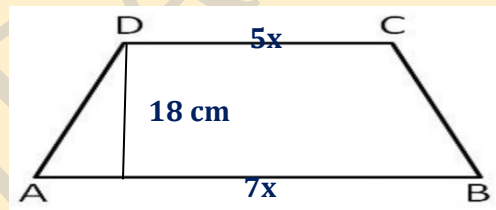
Solution : Area of the cross – section = $\frac{1}{2} \times 14 (1.5 + 8) = 66.5 \text{ m}^2$ **Ans.**

8. The area of a trapezium is 540 cm^2 . If the ratio of the parallel sides is 7:5 and the distance between them is 18 cm, find the length of parallel sides.

Solution : Area of trapezium = 540 cm^2

$$\Rightarrow \frac{1}{2} \times 18 (7x + 5x) = 540$$

$$\Rightarrow x = 5$$



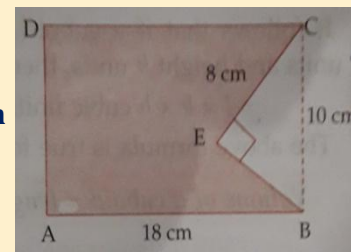
Hence, $7x = 7 \times 5 = 35 \text{ cm}$ and $5x = 5 \times 5 = 25 \text{ cm}$ **Ans.**

15. From the figure, ABCD is a rectangle of size 18 cm by 10 cm. In $\triangle BEC$, $\angle E = 90^\circ$ and $EC = 8 \text{ cm}$. Find the area enclosed by the pentagon ABECD.

Solution : In $\triangle BEC$, $\angle E = 90^\circ$ $BE^2 = 10^2 - 8^2 = 100 - 64 = 36 \Rightarrow BE = 6 \text{ cm}$

$$\text{Area enclosed by the pentagon ABECD} = 18 \times 10 - \frac{1}{2} \times 8 \times 6$$

$$= 180 - 24 = 156 \text{ cm}^2 \quad \text{Ans.}$$



HOMEWORK

EXERCISE – 18.2

QUESTION NUMBERS : 1, 3, 5, 10, 12 and 15