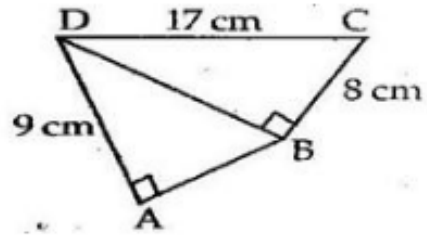
Exercise 10A

Question 5:

(i) ABCD is a quadrilateral.



Now in right angled Δ DBC,

$$DB^2 = DC^2 - CB^2$$

$$= 17^2 - 8^2$$

$$= 289 - 64 = 225 \text{ cm}^2$$

$$\therefore \quad DB = \sqrt{225} = 15 \text{cm}$$

So, area of $\Delta DBC = \left(\frac{1}{2} \times 15 \times 8\right) \text{cm}^2 = 60 \text{ cm}^2$

Again, in right angled ΔDAB,

$$AB^2 = DB^2 - AD^2$$

$$= 15^2 - 9^2$$

$$= 225 - 81 = 144 \text{cm}^2$$

$$\therefore \quad AB = \sqrt{144} = 12 \text{ cm}$$

$$\therefore \quad \text{area of } \Delta DAB = \left(\frac{1}{2} \times 12 \times 9\right) \text{cm}^2 = 54 \text{ cm}^2$$

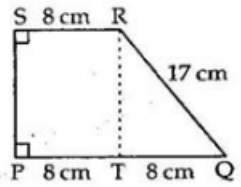
So, area of quadrilateral ABCD

$$= \text{Area of } \Delta DBC + \text{Area of } \Delta DAB$$

$$= (60 + 54) \text{ cm}^2 = 114 \text{ cm}^2$$

$\therefore$ area of quadrilateral ABCD = 114 cm^2

(ii)



RT ⊥PQ

In right angled ΔRTQ

$RT^2 = RQ^2 - TQ^2$

$= 17^2 - 8^2$

$= 289 - 64 = 225\ cm^2$

$\therefore \quad RT = \sqrt{225} = 15\ cm$

$\therefore$ Area of trapezium $= \frac{1}{2}$(sum of parallel sides) x distance between them

$$= \frac{1}{2} \times (PQ + SR) \times RT$$

$$= \frac{1}{2} \times (16 + 8) \times 15$$

$$= \left(\frac{1}{2} \times 24 \times 15\right) cm^2 = 180 cm^2$$

$\therefore$ area of trapezium $= 180 cm^2$

********** END **********