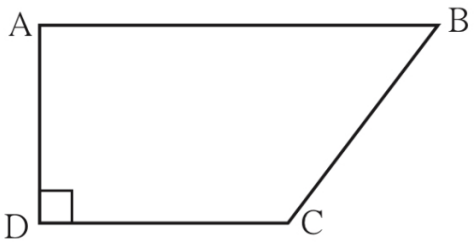
15 Area

Practice Set 15.3

1. In □ ABCD, $l(AB) = 13$ cm, $l(DC) = 9$ cm, $l(AD) = 8$ cm, find the area of □ ABCD.



Soln:-

$l(AB) = 13$ cm

$l(DC) = 9$ cm

$l(AD) = 8$ cm

$A(\square ABCD) = ?$

$$A(\square ABCD) = \frac{1}{2} \times \left[\text{Sum of parallel sides}\right] \times \text{height}$$

$$= \frac{1}{2} \times (AB + DC) \times AD$$

$$= \frac{1}{2} \times (13 + 9) \times 8$$

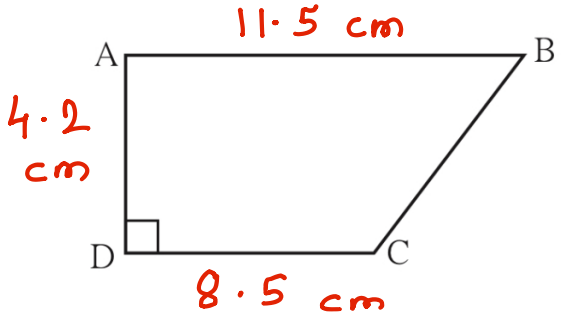
$$= \frac{1}{2} \times 22 \times 8$$

$$= 11 \times 8$$

$$A(\square ABCD) = 88 \text{ cm}^2$$

2. Length of the two parallel sides of a trapezium are 8.5 cm and 11.5 cm respectively and its height is 4.2 cm, find its area.

Soln:-



Here,

$\ell(AB) = 11.5$ cm

$\ell(CD) = 8.5$ cm

$\ell(AD) = 4.2$ cm

$A(\square ABCD) = ?$

$$A(\square ABCD) = \frac{1}{2} \times \left[\text{Sum of parallel sides}\right] \times \text{height}$$

$$= \frac{1}{2} \times (AB + DC) \times AD$$

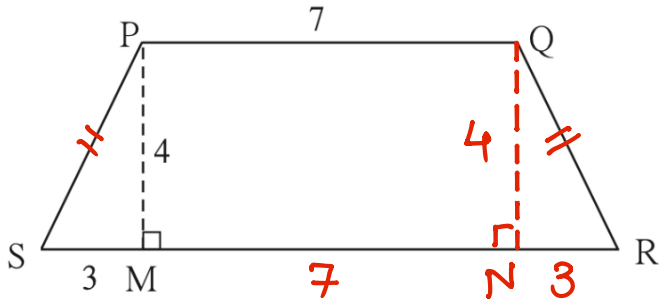
$$= \frac{1}{2} \times (11.5 + 8.5) \times 4.2$$

$$= \frac{1}{2} \times 20 \times 4.2$$

$$= 10 \times 4.2$$

$$\boxed{A(\square ABCD) = 42 \text{ cm}^2}$$

3★. □ PQRS is an isosceles trapezium $l(PQ) = 7$ cm. seg PM ⊥ seg SR, $l(SM) = 3$ cm, Distance between two parallel sides is 4 cm, find the area of □ PQRS



Soln:- As □ PQRS is an isoscales trapezium.

$\therefore$ Seg PS $\cong$ Seg QR

Now, Draw seg QN ⊥ seg SR

Now, △ PMS & △ QNR are congruent triangle.

$\therefore$ seg NR = 3 cm

Now,

l(seg SR) = l(seg SM) + l(seg MN) + l(seg NR)

= 3 + 7 + 3

l(Seg SR) = 13 cm

$$A(\square PQRS) = \frac{1}{2} \times \left[\begin{array}{c} \text{Sum of} \\ \text{parallel} \\ \text{sides} \end{array} \right] \times \text{height}$$

$$= \frac{1}{2} \times (PQ + RS) \times PM$$

$$= \frac{1}{2} \times (7 + 13) \times 4$$

$$= \frac{1}{\cancel{2}_{1}} \times \cancel{20}^{10} \times 4$$

$$= 10 \times 4$$

$$\boxed{A(\square PQRS) = 40 \text{ cm}^2}$$