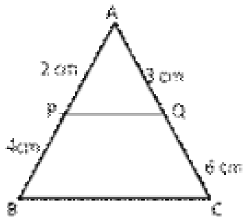
Exercise 4B

Question 9:



Given: P is a point on AB.

Then, AB = AP + PB = (2 + 4) cm = 6 cm

Also Q is a point on AC.

Then, AC = AQ + QC = (3 + 6) cm = 9 cm

$$\therefore \quad \frac{AP}{AB} = \frac{2}{6} = \frac{1}{3}$$

$$\text{and} \quad \frac{AQ}{AC} = \frac{3}{9} = \frac{1}{3}$$

$$\therefore \quad \frac{AP}{AB} = \frac{AQ}{AC}$$

Thus, in ΔAPQ and ΔABC

∠A = ∠A (common)

$$And \quad \frac{AP}{AB} = \frac{AQ}{AC}$$

∴ ΔAPQ ~ ΔABC (by SAS similarity)

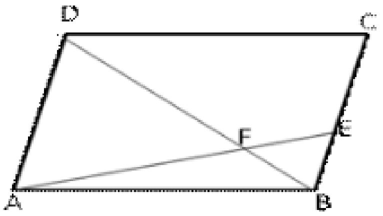
$$\Rightarrow \frac{AP}{AB} = \frac{PQ}{BC} = \frac{AQ}{AC}$$

$$\therefore \frac{PQ}{BC} = \frac{AQ}{AC} \Rightarrow \frac{PQ}{BC} = \frac{3}{9} = \frac{1}{3}$$

$$\therefore \quad BC = 3\,PQ$$

Hence proved.

Question 10:



Given: ABCD is a parallelogram and E is point on BC.

Diagonal DB intersects AE at F.

To Prove: AF x FB = EF x FD

Proof: In ΔAFD and ΔEFB

$\angle AFD = \angle EFB$ (vertically opposite $\angle$s)

$\angle DAF = \angle BEF$ (Alternate $\angle$s)

$\therefore \Delta AFD \approx \Delta EFD$ [By AAA similarity]

$$\therefore \frac{AF}{EF} = \frac{FD}{FB}$$

$$AF \times FB = EF \times FD$$

Hence proved.

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