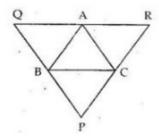


Exercise 9B

Question 21:

Given: A ΔABC, in which through points A, B and C, lines QR, QP and RP have been drawn parrallel to BC, AC and AB of ΔABC respectively.



To Prove : Perimeter of $\triangle PQR = 2(Perimeter of \triangle ABC)$

Proof:

Since AR || BC and AB || RC

[Given]

So, ABCR is a parallelogram. Therefore

$$AR = BC$$

.....(i)

Also, AQ | BC and QB | AC

So, AQBC is a parallelogram. Therefore

$$QA = BC$$

.....(ii)

Adding both side of (i) and (ii), we get

$$AR + QA = BC + BC$$

$$\rightarrow$$

QR = 2BC

$$\Rightarrow$$
 BC = $\frac{QR}{2}$

$$\therefore$$
 BC = $\frac{1}{2}$ QR

Similarly, we can prove AB = $\frac{1}{2}$ RP and AC = $\frac{1}{2}$ PQ

So, Perimeter of $\Delta PQR = PQ + QR + RP$

$$=2AC+2BC+2AB$$

$$= 2(AC + BC + AB)$$

= $2(Perimeter of \triangle ABC)$

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