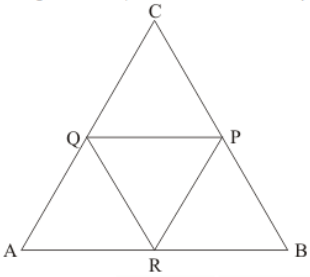
Quadrilaterals Ex 14.4 Q3

Answer :

It is given that *P, Q* and *R* are the mid-points of *BC, CA* and *AB* respectively.



Also, we have $AC = 21\text{cm}$, $BC = 29\text{cm}$ and $AB = 30\text{cm}$

We need to find the perimeter of quadrilateral *ARPQ*

In ΔABC , *P* and *R* are the mid-points of *CB* and *AB* respectively.

Theorem states, the line segment joining the mid-points of any two sides of a traingle is parallel to the third side and equal to half of it.

Therefore, we get:

$$PR = \frac{1}{2}AC$$

$$PR = \frac{1}{2}(21\text{cm})$$

$$PR = \frac{21}{2}\text{cm}$$

Similarly, we get

$$PQ = \frac{1}{2}AB$$

$$PQ = \frac{1}{2}(30\text{cm})$$

$$PQ = 15\text{cm}$$

We have *Q* and *R* as the mid points of *AC* and *AB* respectively.

Therefore,

$$AQ = \frac{1}{2}AC$$

$$AQ = \frac{1}{2}(21\text{cm})$$

$$AQ = \frac{21}{2}\text{cm}$$

And

$$AR = \frac{1}{2} AB$$

$$AR = \frac{1}{2}(30\text{cm})$$

$$AR = 15\text{cm}$$

Perimeter of $ARPQ = AR + PR + AQ + PQ$

$$= 15\text{cm} + \frac{21}{2}\text{cm} + \frac{21}{2}\text{cm} + 15\text{cm}$$

$$= \boxed{51\text{cm}}$$

Hence, the perimeter of quadrilateral *ARPQ* is $\boxed{51\text{ cm}}$.

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