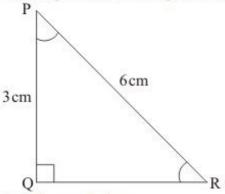


Trigonometric Ratios Ex 5.2 Q39

Answer:

We are given the following information in the form of triangle



To find: $\angle P$ and $\angle R$

Now, in ΔPQR

$$\cos P = \frac{PQ}{PR}$$

$$cos P = \frac{3}{6}$$

$$= \frac{1}{2} \dots (1)$$

Now we know that

$$\cos 60^{\circ} = \frac{1}{2}$$
 (2)

We get,

$$\angle P = 60^{\circ}$$
 (3)

Now we have

$$\sin P = \frac{QR}{PR}$$

$$\sin 60^\circ = \frac{QR}{6}$$

Now we know that

$$\sin 60^\circ = \frac{\sqrt{3}}{2}$$

Therefore,

$$\frac{\sqrt{3}}{2} = \frac{QR}{6}$$

Now by cross multiplying

We get,

$$6 \times \sqrt{3} = 2 \times QR$$

$$\Rightarrow 6\sqrt{3} = 2QR$$

$$\Rightarrow QR = \frac{6\sqrt{3}}{2}$$

$$\Rightarrow QR = 3\sqrt{3}$$

Therefore,

$$QR = 3\sqrt{3} \text{ cm} \dots (4)$$

 $QR = 3\sqrt{3} \text{ cm} \dots (4)$

Now we know that

$$\cos R = \frac{QR}{PR}$$

$$\cos R = \frac{3\sqrt{3}}{6}$$

$$\Rightarrow \cos R = \frac{\sqrt{3}}{2} \qquad \dots (9)$$

Now we know,

$$\cos 30^{\circ} = \frac{\sqrt{3}}{2}$$
 (6)

Now by comparing equation (5) and (6)

We get,

$$\angle R = 30^{\circ}$$
 (7)

Hence from equation (3) and (7)

$$\angle P = 60^{\circ}$$
 and $\angle R = 30^{\circ}$

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