



## CHAPTER 9: TRIGONOMETRY II



### Paper 1

#### Solution to Question 16

By using Pythagoras' theorem on  $\triangle UVR$ ,

$$UR^2 = 5^2 - 4^2$$

$$= 9$$

$$UR = \sqrt{9}$$

$$= 3 \text{ cm}$$

$$\begin{aligned}\text{Therefore, } PR &= 3 \times 2 \\ &= 6 \text{ cm}\end{aligned}$$

$$\angle PRQ + \theta = 90^\circ$$

$$\angle PRQ + \angle QPR = 90^\circ \text{ too.}$$

$$\text{Therefore, } \angle QPR = \theta$$

$$\text{Thus, } \cos \theta = \cos \angle QPR$$

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

$$= \frac{5}{6}$$

**Answer: D**

**Solution to Question 18**

$$\text{Given } \tan \angle PNQ = \frac{4}{3}$$

$$\frac{PQ}{6} = \frac{4}{3}$$

$$\begin{aligned} PQ &= \frac{4}{3} \times 6 \\ &= 8 \text{ cm} \end{aligned}$$

$$MP = 9 + 6 = 15 \text{ cm}$$

Using Pythagoras' theorem on  $\triangle PMQ$ ,

$$MQ^2 = 15^2 + 8^2$$

$$= 289$$

$$MQ = \sqrt{289}$$

$$= 17 \text{ cm}$$

$$\sin y = -\sin \angle PMQ$$

$$= -\frac{PQ}{MQ}$$

$$= -\frac{8}{17}$$

**Answer: C**

**Solution to Question 21**

$$\begin{aligned}\text{Given } JK &= KM \\ &= 12 + 3 \\ &= 15 \text{ cm}\end{aligned}$$

Using Pythagoras' theorem on  $\triangle JKL$ ,

$$\begin{aligned}JL^2 &= 15^2 - 12^2 \\ &= 81 \\ JL &= \sqrt{81} \\ &= 9 \text{ cm}\end{aligned}$$

$$\tan x = -\tan \angle JML$$

$$\begin{aligned}&= -\frac{JL}{LM} \\ &= -\frac{9}{3} \\ &= -3\end{aligned}$$

**Answer: C**