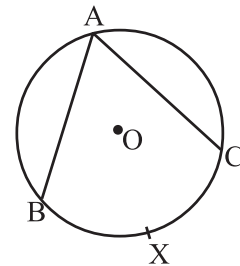


Q.1. Solve any five from the following subquestions.

5

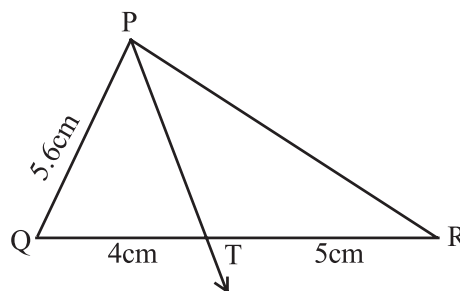
- i) $\angle BAC$ is an inscribed angle in the circle with centre O. If $m\angle BAC = 65^\circ$ then find the m (arc BXC).
- ii) If the side of a cube is 5 cm then find the total surface area of that cube.
- iii) Find the value of $\sin(-60^\circ)$.
- iv) Find the y-intercept of the equation $y = 2x - 5$.
- v) If the radius of the cylinder is 7cm and height is 2 cm then find the volume of the cylinder.
- vi) For the angle in standard position if the initial arm rotates 110° in anticlockwise direction then state in which quadrant terminal arm lies ?



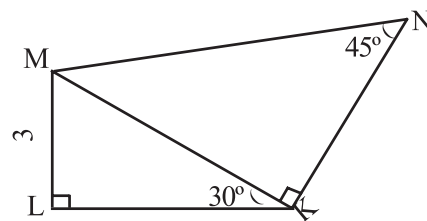
Q.2 Solve any four from the following subquestions.

8

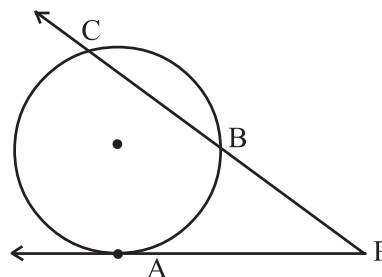
- i) Ray PT is the bisector of $\angle QPR$ of $\triangle PQR$. $PQ = 5.6$ cm, $QT = 4$ cm, $TR = 5$ cm then find the length of PR.



- ii) In the adjoining figure $\angle MKL = 30^\circ$, $\angle MNK = 45^\circ$ if $ML = 3$ then find MK and MN.



- iii) As shown in the adjoining figure line AP is a tangent and line CP is a secant to the circle. If $AP = 15$ and $BP = 10$ then find BC.

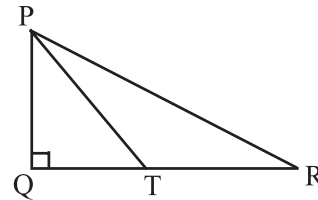


- iv) Draw a ΔABC , where $AB = 4.5$ cm. $BC = 7.5$ cm. and $AC = 6$ cm. and draw circumcircle of ΔABC .
- v) Eliminate θ , if $x = a \sec \theta$, $y = b \tan \theta$.
- vi) If $\sin \theta = \frac{5}{13}$ where θ is an acute angle then find the value of $\cos \theta$ and $\cot \theta$.

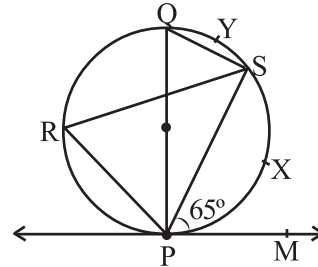
Q.3 Solve any three of following subquestions.

9

- i) In ΔPQR , $\angle PQR = 90^\circ$. T is mid point of QR. show that $3PQ^2 = 4PT^2 - PR^2$.



- ii) In the figure, PQ is a diameter, line PM is a tangent at P.
 $\angle SPM = 65^\circ$. Find $\angle PQS$, $\angle PSQ$,
 $m(\text{arc PXS})$ and $m(\text{arc PRS})$.



- iii) Draw a circle with radius 3.5 cm and centre O. Take a point P at a distance 8 cm from the centre. Draw tangents to the circle through the point P. Measure the lengths of the tangent segments.
- iv) Write the equation of a line passing through the points $A(-3, 5)$ and $B(4, -7)$
- v) The circumference of the base of a right circular cone is 22 cm and its height is equal to the diameter of the base. Find its volume.

Q.4. Solve any two of the following subquestions.

8

- i) Prove that the opposite angles of cyclic quadrilateral are supplementary.
- ii) $A(3, 7)$, $B(5, 11)$ $C(-2, 8)$ are the vertices of ΔABC . Find the equation of median AD and find the equation of a line parallel to AD and passing through the point C.
- iii) The angle of elevation of a cloud from a point 60 m above the lake is 30° and the angle of depression of the reflection of cloud in the lake is 60° . Find the height of the cloud.

Q.5. Solve any two of the following subquestions.

10

- i) Prove that the ratio of areas of two similar triangles is equal to the square of the ratio of their corresponding sides.
- ii) $\triangle ABC \sim \triangle LMN$. In $\triangle ABC$, $AB = 5.1$ cm. $\angle B = 55^\circ$, $\angle C = 65^\circ$ and $\frac{AC}{LN} = \frac{3}{5}$ then construct $\triangle LMN$.
- iii) Water is filled in a right cylindrical tank with base radius 14 cm, such that water level is 3 cm below the top. When an iron ball is dropped in the tank, 3003cm^3 of water flows out. Find the radius of the ball.
