MAHARASHTRA BOARD CLASS 9
MATHS PART 2QUESTIONS

Maharashtra Board

Class IX Mathematics – Part-II

Time: 2 hours **Total Marks: 40**

Note: (1) All questions are compulsory.
(2) Use of a calculator is not allowed.

Q1.A. Choose the correct alternative. **5**

1. In complementary angle, if one angle is $(\frac{2}{5})^{th}$ times of other angle, then find the smaller angle?
   A. $64.3°$
   B. $25.72°$
   C. $45.72°$
   D. $54.3°$
2. A quadrilateral triangle has four angles, and three of them are $60°, 85°, and\ 115°$. Then the fourth angle is
   A. $120°$
   B. $70°$
   C. $100°$
   D. $105°$
3. Find the length of longest chord of the circle if the area of circle is $625\pi\ cm^2$.
   A. $50\ cm$
   B. $36\ cm$
   C. $45\ cm$
   D. $25\ cm$
4. The points $P(-5,-6), Q(-3,-11), R(-13,-12)$, and $S(-17,-5)$ all lie in
   A. Quadrant I
   B. Quadrant II
   C. Quadrant III
   D. All of these
5. Find the radius of the sphere when its volume is $\frac{864}{3}\pi\ cm^3$.
   A. 4 cm
   B. 6 cm
   C. 2 cm
   D. 8 cm

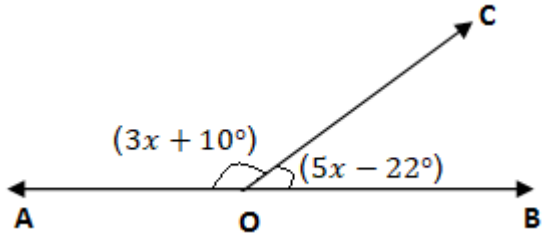
B. Do any five activities of the following. **5**

1. In $\Delta ABC, \angle A - \angle B = 35°$ and $\angle B - \angle C = 20°$, then find angle B.
2. If one of the angle of the base is 18° less than angle of the vertex of an isosceles triangle, then find the angle at each base.
3. If equal side of an isosceles triangle is $6\sqrt{2}\ cm$ and its base is 8 cm, then find the area of an isosceles triangle?
4. If the altitude of the equilateral triangle is 11 cm, then find the side of equilateral triangle.

5. It is given that $\Delta ABC \cong \Delta FDE$ in which $AB = 4\,cm, \angle B = 50°, \angle A = 75°$ and $FD = 4\,cm$, then find $\angle E$ =?
6. On which axis do the given points lie?
(i) $(4,0)$
(ii) $(0,-6)$

Q.2.Solve any four of the following. **8**

1. In the question figure, AOB is a straight line, then find the value of x.



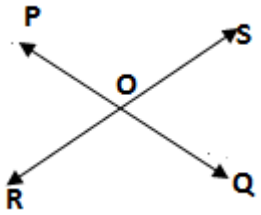
2. In two similar triangles, if the median of the first triangle is 14.0 cm and the median of the second triangle is 12.0 cm and area of the first is 196 cm^2, then find the area of the second triangle?
3. If the ratio of four angles of the quadrilateral is $7:5:8:10$. Then, find the largest angle of the quadrilateral?
4. Prove that $sin^2 45 + cos^2 45 = sin^2 60 + cos^2 60$

5. If $\cos^2\theta - \sin^2\theta = \frac{1}{7}$, where $0 \leq \theta < \frac{\pi}{2}$, then find the value of $\cos^4\theta - \sin^4\theta$?

6. The area of a trapezium is $900\ cm^2$ and one of its parallel sides is $108\ cm$ and the height of the parallel side is $12\ cm$. Find the length of the other parallel side.

Q.3.Solve any three of the following. **9**

1. In given figure, the ratio of $\angle POR : \angle ROQ$ is $6:9$ and lines PQ and RS intersect each other at point O then find $\angle SOQ$.

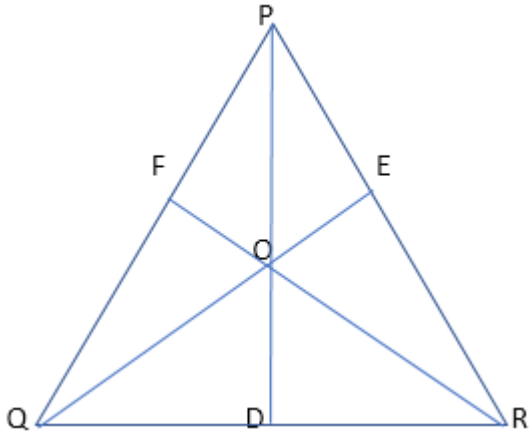


2. If the perimeter of an equilateral triangle is $\frac{27\sqrt{3}}{4}\ cm$. Then, find the area of the equilateral triangle.
3. If the radius of the circle is subtracted from x and the area of the circle becomes half. Then, find the radius of the circle.
4. One of the angles of a parallelogram is $30°$ greater than twice the smallest angle. Then find the value of each angle.

5. If $\frac{\sin\theta}{1-\cos\theta} + \frac{\sin\theta}{1+\cos\theta} = 2$, then the value of θ ($0° < \theta < 90°$) is

Q.4. Act as per given instruction. Any Two. **8**

1. Find the area of a triangle when two sides of triangle are 5.5 cm and 11 cm and semi perimeter 13.5 cm.
2. As shown in the figure, there is an equilateral triangle such that PQ = QR = RP and OF = 8 cm, OE = 10 cm, OD = 11 cm. Also, OF ⊥ PQ, OE ⊥PR, OD ⊥ QR. Find the area of the equilateral triangle.



3. Draw a line segment $PQ = 7.6\,cm$ and draw the perpendicular bisector for the line segment. Measure the length of each segment.

Q.5. Solve any one sub-question from the following. **5**

1. If $\tan B = \frac{3}{4}$, find the other trigonometric values of B.
2. If radius of cylinder is decreased by 12 percent and height is increased by 16 percentage, then find the change in percentage of the curved surface area of the cylinder.