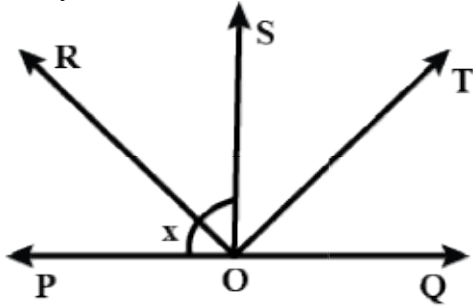


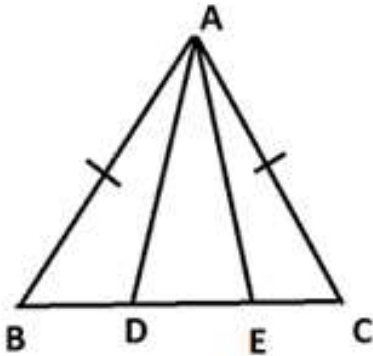
Attempt all the questions

1. Which of the following is irrational?
 a) $\sqrt{\frac{4}{9}}$ b) $\frac{4}{5}$ c) $\sqrt{7}$ d) $\sqrt{81}$
2. If $(2^3)^2 = 4^x$. Then $3^x =$
 a) 3 b) 6 c) 9 d) 27
3. $\frac{1}{\sqrt{9}-\sqrt{8}}$ is equal to
 a) $3+2\sqrt{2}$ b) $\frac{1}{3+2\sqrt{2}}$ c) $3-2\sqrt{2}$ d) $\frac{3}{2}-\sqrt{2}$
4. The rationalisation factor of $\sqrt{3}$, is
 a) $-\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) $2\sqrt{3}$ d) $-2\sqrt{3}$
5. If $a + b + c = 9$ and $ab + bc + ca = 23$, then $a^2 + b^2 + c^2 =$
 a) 35 b) 58 c) 127 d) None of these
6. If $a-b = -8$ and $ab = -12$ then $a^3 - b^3 =$
 a) -244 b) -240 c) -224 d) -260
7. The factors of $a^2 - 1 - 2x - x^2$, are
 a) $(a-x+1)(a-x-1)$ b) $(a+x-1)(a-x+1)$ c) $(a+x+1)(a-x-1)$ d) None of these
8. The expression $(a-b)^3 + (b-c)^3 + (c-a)^3$ can be factorized as
 a) $(a-b)(b-c)(c-a)$ b) $3(a-b)(b-c)(c-a)$
 c) $-3(a-b)(b-c)(c-a)$ d) $(a+b+c)(a^2+b^2+c^2-ab-bc-ca)$
9. The value of k for which $x-1$ is a factor of $4x^3 + 3x^2 - 4x + k$, is
 a) 3 b) 1 c) -2 d) -3
10. Let $f(x)$ be a polynomial such that $f(\frac{-1}{2}) = 0$, then a factor of $f(x)$ is
 a) $2x-1$ b) $2x+1$ c) $x-1$ d) $x+1$
11. The distance of the point $P(4, 3)$ from the origin is
 a) 4 b) 3 c) 5 d) 7
12. The abscissa of point is positive in the
 a) First and Second Quadrant b) Second and Third Quadrant
 c) Third and Fourth Quadrant d) Fourth and First Quadrant
13. The point of intersect of the coordinate axes
 a) Ordinate b) Abscissa c) Quadrant d) Origin
14. How many least number of distinct points determine a unique line ?
 a) One b) two c) Three d) four

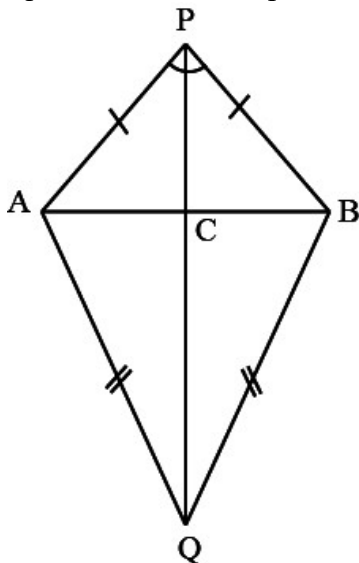
29. In figure, ray OS stands on a line POQ. Ray OR and ray OT are angle bisectors of $\angle POS$ and $\angle SOQ$, respectively. If $\angle POS = x$, find $\angle ROT$ 3



30. In an isosceles triangle ABC with $AB=AC$. D and E are the points on BC such that $BE=CD$. Show that $AD=AE$ 3



31. ABC is an isosceles triangle with $AB = AC$. Draw $AP \perp BC$ to show that $\angle B = \angle C$. 3
32. Verify that $x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$ 5
Without actually calculating the cubes, find the value of $(-12)^3 + (7)^3 + (5)^3$
33. It is given that $\angle XYZ = 64^\circ$ and XY is produced to point P. Draw a figure from the given information. 5
If ray YQ bisect $\angle ZYP$, find $\angle XYQ$ and reflex $\angle QYP$.
34. AB is a line segment. P and Q are points on opposite sides of AB such that each of them is equidistant from the points A and B. Show that the line PQ is the perpendicular bisector of AB. 5



35. P is a point equidistant from two lines l and m intersecting at a point A. Draw the figure and show that the line AP bisects the angle between them. 5
36. In a classroom of class IX, an activity on real numbers is done with the students. A student has to pick a card and has to answer the questions written on it. The cards picked up by first three students and their questions written on it are given below. Find out its correct option/answer 4
- a) Which type of number is $\sqrt{13}$ (Rational /irrational)
 - b) $\frac{1}{5}$ is a/an number
 - c) For what value of p $\frac{251}{2^3 p^2}$ is a non-terminating recurring decimal. Which type of number has decimal expression as non-terminating decimal?
37. Suresh wants to paint a wall of his room. He decides to paint the wall in two colours, red and green, divided diagonally. The area of the wall is $25a^2 - 35a + 12$. On the basis of this information give the answer of the following questions. 4
- a) Give possible expression for the length and breadth.
 - b) The area of the wall isPolynomial.
 - c) If $a = 3$ then find the area of the wall?
38. In a classroom, some friends are seated at the points B, C, D, E, G, H, L, M, as shown in figure. On the basis of this information give the answer of the following questions. 4
- a) The coordinates of B.
 - b) The abscissa of the point D and the ordinate of the point H.
 - c) The point identified by the coordinates (-3, -5)
 - d) The coordinates of the points L.

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