9th STANDARD MID-TERM EXAMINATION

MATHEMATICS

A

Duration : 2hour 45minutes Maximum Marks : 80

---

1. $\sqrt{10}\times\sqrt{15}$ is equal to . . . . . 1×8=8

   A) $6\sqrt{5}$ B) $5\sqrt{6}$ C) $6\sqrt{25}$ D) $6\sqrt{6}$

2. Every rational number is a . . . . . number.

   A) Real B) whole C) Natural D) Positive

3. The graph of the linear equation $x = y$ passes through . . . . .

   A) (1 , 2) B) (2 , 1) C) (1 , 1) D) (–1 , 1)

4. If the sum and product of three numbers is 0 and 30 respectively, the sum of the cubes of those three numbers is . . . . . .

   A) 90 B) 60 C) 30 D) 10

5. Ordinate of all points on x-axis is . . . .

   A) –1 B) 0 C) 1 D) Any number

6. According to Euclid, boundaries of a surface are . . . . .

   A) Surfaces B) Curves C) lines D) Points

7. The angles of a triangle are in the ratio 2:4:3. The smallest angle is . . . . .

   A) 80^0 B) 60^0 C) 40^0 D) 20^0

8. In ΔABC , if AB = AC and $\angle A = 40^0$ then . . . . .

   A) $\angle A=\angle B=40^0$ B) $\angle B=\angle C=70^0$ C) $\angle C=\angle A=40^0$ D) $\angle B=\angle C=80^0$

9. In which quadrant or on which axis the point (0 , –2) lie ?

10. How many solutions does a linear equation in two variables has ?

11. Find the zero of the polynomial $p(x) = 3x - 5$.

12. Define ‘Parallel lines’.

13. Two angles whose sum is 90° are called . . . . . angles.

14. In a triangle the sum of any two sides is . . . . . than the third side.

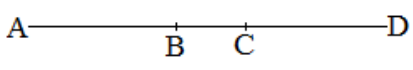
15. Give the geometric representations of y = 3 as an equation
    (i) in one variable (ii) in two variables

16. Rationalise the denominator and simplify : $\frac{1}{2+\sqrt{3}}$ OR Simplify : $\left(3+\sqrt{2}\right)^2$

17. Express the recurring decimal number $0.4\overline{37} = 0.4373737.....$ in the form of a fraction.

18. Classify the following as linear, quadratic and cubic polynomials :
    (i) $x^2 + x$ (ii) $x - x^3$ (iii) $y + y^2 + 4$ (iv) $1 + x$.

19. In the figure if AC = BD, then prove that AB = CD.



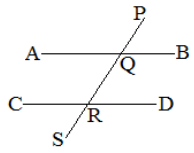
20. Find two solutions for the equation : $4x + 3y = 12$

21. Classify into rational and irrational numbers : 0.25 , $\sqrt{3}$, 0.8888…. , 0.2020020002…..

22. Find the product of any one, using suitable identity : (i) 94×95 OR (ii) 98^2

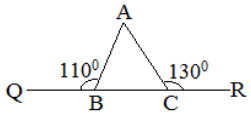
23. Write any two axioms of Euclid.

24. In the figure AB $\|$ CD and $\angle BQP = 65^0$
Find all the remaining angles in the figure.



25. Draw figures showing (i) $\angle ABC = 100^0$ and (ii) Linear pairs of angles

26. In the figure , $\angle ABQ = 110^0$ and $\angle ACR = 130^0$
Find all the angles of ΔABC.

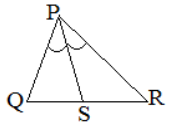


27. Factorise $x^2 - x - 12$ by splitting the middle term.

28. In ΔABC , AB = AC , BD $\perp$ AC and CF $\perp$ AB . Prove that $\Delta ABD \cong \Delta ACF$.

29. Locate $\sqrt{3}$ on the number line.

30. In the figure, PR > PQ and PS bisects $\angle QPR$. Prove that $\angle PSR > \angle PSQ$.



31. Find six different irrational numbers between $\frac{1}{7}$ and $\frac{2}{7}$. $3\times6=18$

OR

Find six different rational numbers between 1 and 2.

32. Simplify : (i) $(32)^{\frac{2}{5}}$ (ii) $\frac{3^{10}}{3^7}$ (iii) $2^4 \times 2^5$

33. Expand using suitable identity : $(2x + 3y + 4z)^2$

OR

Evaluate using suitable identity : $(104)^3$

34. If $x + y + z = 0$, show that $x^3 + y^3 + z^3 = 3xyz$.

35. Prove that 'If a transversal intersects two parallel lines, then each pair of alternate interior angles is equal'

OR

Prove that 'If two lines intersect each other, then the vertically opposite angles areequal'

36. When two line segments AB and CD bisect each other at O, Show that
(i) Δ AOD $\cong$ Δ BOC and (ii) AD || BC.

OR

Prove that 'Angles opposite to equal sides of an isosceles triangle are equal'.

37. Visualise 4.2675 on the number line, using successive magnification. $4\times4=16$

38. By using remainder theorem find the remainder when $p(x) = (x^3 - 5x^2 - 9x + 10)$ is divided by $g(x) = (x - 1)$ and verify the answer by actual division.

OR

Factorise the following using appropriate identities : (i) $9x^2 + 6xy + y^2$ (ii) $4y^2 - 9$

39. Draw the graph of the linear equation : $2x + y = 5$

40. Prove that 'The sum of the angles of a triangle is 180º.'

* * * * *