

CLASS : 9 COMMON QUARTERLY EXAMINATION-2024-25

Register Number 9312

MATHEMATICS

Time Allowed : 3.00 Hours]

[Max. Marks : 100

PART - A

14x1=14

Choose the correct Answer.

- If $B \subseteq A$ then $n(A \cap B)$ is
(a) $n(A-B)$ (b) $n(B)$ (c) $n(B-A)$ (d) $n(A)$
- If $B - A$ is B , then $A \cap B$ is
(a) A (b) B (c) \cup (d) ϕ
- Let $A = \{\phi\}$ and $B = P(A)$ then $A \cap B$ is
(a) $\{\phi, \{\phi\}\}$ (b) $\{0\}$ (c) ϕ (d) $\{0\}$
- If $U = \{x: x \in \mathbb{N} \text{ and } x < 10\}$ $A = \{1, 2, 3, 5, 8\}$ and $B = \{2, 5, 6, 7, 9\}$ then $n(A \cup B)$ is
(a) 1 (b) 2 (c) 3 (d) 8
- Which one of the following is an Irrational Number.
(a) $\sqrt{25}$ (b) $\frac{\sqrt{9}}{4}$ (c) $\frac{7}{11}$ (d) π
- Find the odd one out of the following
(a) $\sqrt{32} \times \sqrt{2}$ (b) $\frac{\sqrt{27}}{\sqrt{3}}$ (c) $\sqrt{72} \times \sqrt{8}$ (d) $\frac{\sqrt{54}}{\sqrt{18}}$
- If $\sqrt{80} = K\sqrt{5}$ then $K =$ -----
(a) 2 (b) 4 (c) 8 (d) 16
- $4\sqrt{7} \times 2\sqrt{3} =$
(a) $6\sqrt{10}$ (b) $8\sqrt{21}$ (c) $8\sqrt{10}$ (d) $6\sqrt{21}$
- The root of the polynomial equation $2x + 3 = 0$ is
(a) $\frac{1}{3}$ (b) $-\frac{1}{3}$ (c) $-\frac{3}{2}$ (d) $-\frac{2}{3}$
- Zeros of $(2 - 3x)$ is
(a) 3 (b) 2 (c) $\frac{2}{3}$ (d) $\frac{3}{2}$
- Degree of the constant polynomial is
(a) 3 (b) 2 (c) 1 (d) 0
- If $(2, 3)$ is a solution of Linear equation $2x + 3y = K$ then, the value of K is
(a) 12 (b) 6 (c) 0 (d) 13
- The Exterior angle of a triangle is equal to the sum of two -----
(a) Exterior Angles (b) Interior Opposite Angle
(c) Alternate Angles (d) Interior Angle
- The angle of the triangle are $3x - 40$, $x + 20$ and $2x - 10$ then the value of x is
(a) 40° (b) 35° (c) 50° (d) 80°

PART - B

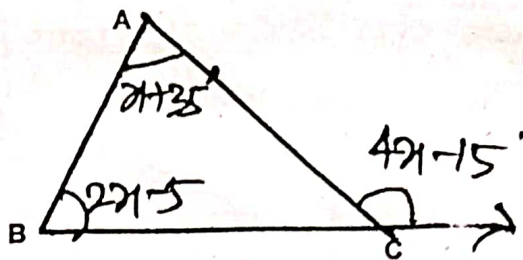
Answer any 10 questions. Question No. 28 is compulsory.

10x2=20

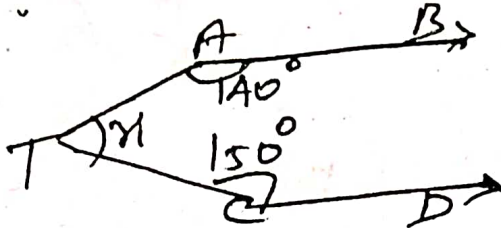
- Find the number of subsets and the number of proper subsets of a set $x = \{a, b, c, x, y, z\}$
- If $P = \{1, 2, 5, 7, 9\}$ $Q = \{2, 3, 5, 9, 11\}$ $R = \{3, 4, 5, 7, 9\}$ and $S = \{2, 3, 4, 5, 8\}$ then find $(P \cup Q) \cup R$
- If $n(A) = 25$, $n(B) = 40$ and $n(A \cup B) = 50$ and $n(B^c) = 25$ Find $n(A \cap B)$ and $n(\cup)$
- Verify that $1 = 0.\overline{9}$
- Find the 5th root of 243
- Simplify : $\sqrt{63} - \sqrt{175} + \sqrt{28}$
- The mass of the Earth is 5.97×10^{24} Kg and that of the moon is 0.073×10^{24} Kg. What is their total mass?
- If $P(x) = 4x^2 - 3x + 2x^3 + 5$ and $q(x) = x^2 + 2x + 4$, then Find $P(x) + q(x)$.
- Check whether -3 and 3 are zeros of the polynomial $x^2 - 9$
- Show that $x + 2$ is a factor of $x^3 - 4x^2 - 2x + 20$.

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25. Evaluate $10^3 - 15^3 + 5^3$
 26. Find the all three angles of the $\triangle ABC$.



27. In the figure, AB is Parallel to CD, find x.



28. If $U = \{c, d, e, f, g, h, i, j\}$ and $A = \{c, d, g, j\}$ Find A'

PART - C

Answer the following any 10 questions. Q.No.42 is compulsory.

10x5=50

29. Verify using $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ Using Venn diagram.
30. In a school, all the students play either Hockey or Cricket or Both. 300 play Hockey, 250 play Cricket and 110 play both games Find.
 (i) The number of students who play only Hockey.
 (ii) The number of students who play only Cricket.
 (iii) The total number of students in the school.
31. If $U = \{4, 7, 8, 10, 11, 12, 15, 16\}$, $A = \{7, 8, 11, 12\}$ and $B = \{4, 8, 12, 15\}$ then verify De Morgan's laws of Complementation.
32. In a College 240 students play cricket, 180 students play football, 164 students play hockey 42 play both cricket and foot ball, 38 play both foot ball and hockey, 40 play both cricket and hockey and 16 play all the three games. If each student participate in atleast one game then find i) The number of students in the college ii) The number of students who play only one game.
33. Represent $\sqrt{9.3}$ on a Number line.
34. Represent 5.348 on the number line.
35. Given $\sqrt{2} = 1.414$ Find the value of $\frac{8 - 5\sqrt{2}}{8 + 5\sqrt{2}}$
36. Arrange in Ascending Order ${}^3\sqrt{5}$, ${}^2\sqrt{4}$, ${}^6\sqrt{3}$.
37. Find the quotient and the remainder when $f(x)$ is divided by $g(x)$. $f(x) = 8x^3 - 6x^2 + 15x - 7$, $g(x) = 2x + 1$
38. Find the quotient and remainder when $3x^3 - 4x^2 - 5$ is divided by $3x + 1$ using Synthetic division.
39. Factorize $x^3 - 5x^2 - 2x + 24$
40. The angle of a triangle are in the ratio 1 : 2 : 3 Find the measures of each angle of the triangle.
41. Factorize : $2x^2 - 15x + 27$.
42. If $U = \{x : x \in N, x \leq 10\}$, $A = \{2, 3, 4, 8, 10\}$ and $B = \{1, 2, 5, 8, 10\}$ then verify that $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

PART - D

Answer all the questions.

2x8=16

43. a) Construct the Centroid of $\triangle PQR$ whose sides are $PQ = 8\text{cm}$; $QR = 6\text{cm}$; $RP = 7\text{cm}$.
 (OR)
 b) Draw $\triangle PQR$ with sides of $PQ = 7\text{ cm}$, $QR = 8\text{cm}$, $PR = 5\text{cm}$ Construct its Orthocentre.
44. a) Construct the incentre of $\triangle ABC$ with $AB = 6\text{cm}$ $\angle B = 65^\circ$ and $AC = 7\text{cm}$. Also draw the incircle and measure its radius. (OR)
 b) Construct $\triangle ABC$ with $AB = 5\text{cm}$, $\angle B = 100^\circ$ and $BC = 6\text{cm}$. Also locate circum centre draw Circum circle.

V/9/Mat/2