KENDRIYA VIDYALAYA BHU (F.S) VARANASI
PERIODIC TEST II

CLASS IX SESSION-2024-25
SUBJECT- MATHEMATICS

Time: $2\frac{1}{2}$:00 HOURS **MM: 60**

General Instructions:

1. This Question paper contains- five sections A, B, C, D and E.
2. Section A has 12 MCQ's and 02 Assertion -Reason based questions of 1 markeach.
3. Section B has 4 Very short answer type questions of 2 marks each.
4. Section C has 5 Short Answer (SA)-type questions of 3 marks each.
5. Section D has 3 Long Answer (LA)-type questions of 5 marks each.
6. Section E has 2 sources based /case based/passage based/integrated units ofassessment (4 marks each) with sub parts.

SECTION- A
(Multiple Choice Questions)

1. Every irrational number is
(A) a natural number (B) an integer (C) a real number (D) a whole number

2-What would be the denominator after rationalizing $7/(5\sqrt{3} - 5\sqrt{2})$?
a) 19 (b)20 (c)25 (d) None of these

3-Which of the following needs a proof?
(a) Definition (b) Theorem (c) Axiom (d) Postulate

4:-The exterior angle of a triangle is equal to the
(a) sum of the two interior opposite angles.
(b) sum of the three interior angles.
(c) difference of two interior angles.
(d) opposite of the interior angle.

5: - What is the degree of the given polynomial ? $12 - x + 2x^3$
(a) 3 (b) 1 (c) 0 (d) Undefined

6-: find p(0).if $P(x) = 5 - 4x + 2x^2$
(a) 11 (b) 5 (c) 21 (d) 12

7: - Signs of the abscissa and ordinate of a point in the third quadrant are respectively
(A) (+, +) (B) (–, –) (C) (–, +) (D) (+, –)

8-If the coordinates of the two points are P (–4, 3) and Q(–7, 5), then (abscissa of P) – (abscissa of Q) is
(A) 3 (B) 1 (C) – 1 (D) – 3

9. The equation y = 9 in two variables, can be written as
(A) 1. x + 0. y = 9 (B) 1 . x + 1 . y = 9 (C) 0 . x + 1 . y = 9 (D) 0 . x + 0 . y = 9

10. The linear equation 3x + 5y = 10 has
(A) A unique solution (B) Two solutions
(C) Infinitely many solutions (D) No solution

11- Angles of a triangle are in the ratio 2 : 4 : 3. The smallest angle of the triangle is
(A) 60° (B) 40° (C) 80° (D) 20°

12-If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 1 : 2, then the greater of the two angles is
(A) 54° (B) 108° (C) 120° (D) 136°

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion
(A) is followed by a statement of Reason
(R). Choose the correct answer out of the following choices.
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13- Assertion(A): Point A (–2, 4) lies on III quadrant
Reason(R): A point both of whose coordinates are –ve lies in III quadrant.

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true

14-Assertion(A): degree of non-zero constant polynomial is zero
Reason(R) : polynomials having three terms are called trinomials.

(a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false.
(d) A is false but R is true.

Section –B

15-Find the value of the polynomial y^2- 5y + 6 at y = 2

16. Write two irrational numbers between ½ and 1/3

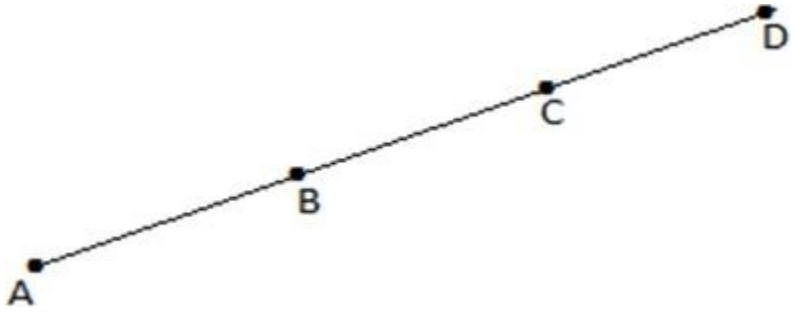
17. Find four different solutions of the equation x + 2y = 6.

18. If a point C lies between two points A and B such that AC = BC, then prove that AC = ½ AB. Explain by drawing the figure.

Section – C

19 -Prove that the sum of the angles of a triangle is 180º.

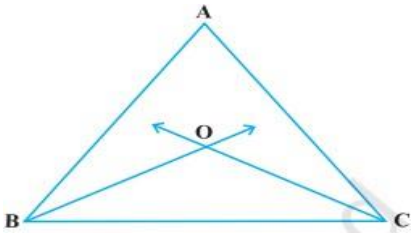
20-If AC = BD, then prove that AB = CD.



21-Factories: $27\ y^3 + 125z^3$

22- If x=1, y=2 is a solution of the equation $a^2x + ay = 3$, then find the value of a.

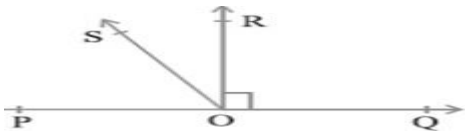
23-Bisectors of angles B and C of a triangle ABC intersect each other at the point O.Prove that ∠BOC = 90° +1/2∠A.



Section –D

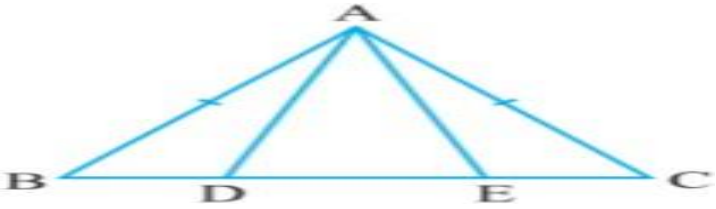
24 (i) Factorize: - (a) $(x-y)^3 + (y-z)^3 + (z-x)^3$ (b) factorize: $4x^2 + 20x + 25$

25-In the Figure, POQ is a line. Ray OR is perpendicular to line PQ. OS isanother ray lying between rays OP and OR. Prove that



∠ROS = 1/2(∠QOS – ∠POS).

26- In an isosceles triangle ABC with AB = AC, D and E are points on BCsuch that BE = CD. Show that AD = AE



Section –E (CASE BASED STUDY QUESTIONS

27. Two classmates Salma and Anil simplified Two different expressions during the revision hour and explained to each other their simplifications. Salma explains simplification of $\sqrt{2}/(\sqrt{5}+\sqrt{3})$ by rationalizing the denominator and Anil explains simplifications of $(\sqrt{2}+\sqrt{3})(\sqrt{2}-\sqrt{3})$ by using the identity $(a+b)(a-b)$.

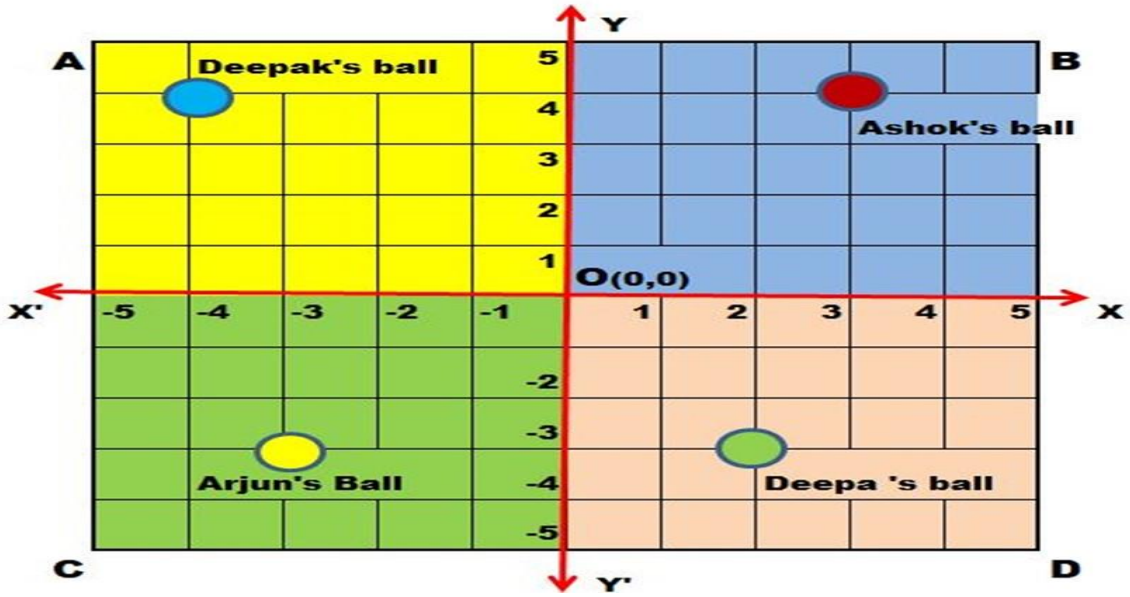
Answer the following question.

(i)Rationalize the denominator of $1/\sqrt{5}$

(ii) $(\sqrt{2}+\sqrt{3})(\sqrt{2}-\sqrt{3})$ =. ?

(iii)Rationalize the denominator of $\sqrt{2}/(\sqrt{5}+\sqrt{3})$

28-



There is a square park ABCD in the middle of Saket colony in Varanasi. Four children Deepak, Ashok, Arjun and Deepa went to play with their balls.The colors of the ball of Ashok, Deepak, Arjun and Deepa are red, blue, yellow and green respectively. All four children roll their ball from Centre point O in the direction of XOY, X'OY, X'OY' and XOY'. Their balls stopped as shown in the image below.

(i) What are the coordinates of the points Deepak's ball and Ashok's ball?

(ii) (ii) What are the coordinates of the points Deepa's ball and Arjun's ball?

(iii) (iii) What is the distance between

(a)Deepak's ball and Ashok's ball(b)Deepa's ball and Arjun's ball?Which of the above is greater.