



PERIODIC TEST 1 (APRIL, 2023)

SUBJECT - MATHEMATICS

CLASS- IX

TIME: 2 hrs

M.M: 40

General Instructions

- 1. All questions are compulsory**
- 2. Section A has 11 questions of 1 mark each.**
- 3. Section B has 4 questions of 2 marks each.**
- 4. Section C has 4 questions of 3 marks each.**
- 5. Section D has 1 question carrying 05 mark.**
- 6. Section E has 1 case based question.**
- 7. Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.**

SECTION A

ANSWER THE FOLLOWING

(11×1)

- Q1. How many rational numbers are there between any two rational numbers?
- Q2. $\sqrt{9}$ is _____ number. (rational/irrational)
- Q3. $x^2 - x$ is _____ polynomial. (linear/ quadratic)
- Q4. If the coordinates of a point are (-3, 4), then it lies in which quadrant?
- Q5. Find the value of $f(x) = 5x - 4x^2 + 3$ when $x = -1$.
- Q6. Find the value of $(x^6)^3$

Q7. The name of the vertical line in the cartesian plane which determines the position of a point is called_____

Q8. Signs of the abscissa and ordinate of a point in the second quadrant are respectively _____

Q9. Rationalize the denominator of $1/(\sqrt{7} - 2)$.

Q10. Find the factors of $3x^2+8x+5$.

Q11. Find the zero of the polynomial $p(x) = -5x+5$.

SECTION B

ANSWER THE FOLLOWING QUESTIONS **(4×2)**

Q12. Without plotting the points indicate the quadrant in which they will lie, if x

(i) the ordinate is 5 and abscissa is - 3

(ii) the abscissa is - 5 and ordinate is - 3

(iii) the abscissa is - 5 and ordinate is 3

(iv) the ordinate is 5 and abscissa is 3

Q13. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by $x + 1$.

Q14. Find the value of k, if $x - 1$ is a factor of $p(x) = kx^2 - 3x + k$

Q15. Rationalise the denominator: $5 + 2\sqrt{3} / 7 + 4\sqrt{3}$

SECTION C

ANSWER THE FOLLOWING QUESTIONS **(4×3)**

Q16. Find value of a and b if $5 + \sqrt{6} / 5 - \sqrt{6} = a + b\sqrt{6}$

Q17. Calculate the perimeter of a rectangle whose area is $25x^2 - 35x + 12$.

Q18. Use the Factor Theorem to determine whether $g(x)$ is a factor of p

$p(x) = 2x^3 + x^2 - 2x - 1$, $g(x) = x + 1$

Q19. Factorize:

A. $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$

B. $27 - 125a^3 - 135a + 224a^2$

SECTION D

EVALUATE THE FOLLOWING

(2.5×2)

Q20 . Verify each of the following identities

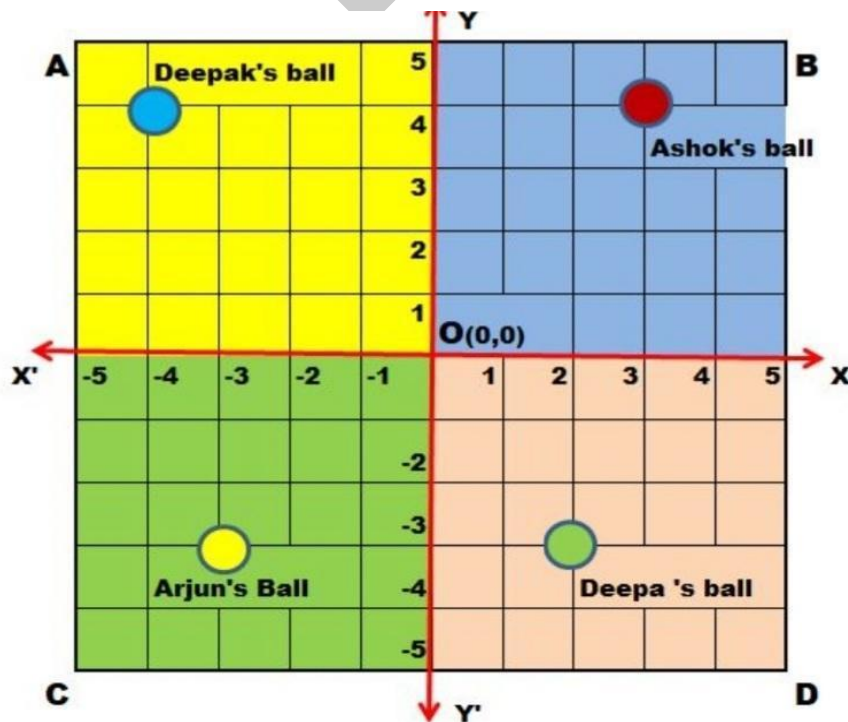
(i) $x^3 + y^3 = (x + y) (x^2 - xy + y^2)$

(ii) $x^3 - y^3 = (x - y) (x^2 + xy + y^2)$

SECTION E

Q21 READ THE SOURCE GIVEN BELOW AND ANSWER ANY 4 QUESTIONS

(1×4)



There is a square park ABCD in the middle of Saket colony in Delhi. Four children Deepak, Ashok, Arjun and Deepa went to play with their balls.

The colour 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 above image.

Answer the following questions:

1. What are the coordinates of the ball of Ashok?
2. What are the coordinates of the ball of Deepa?
3. What is the line XOY' called?
4. What the point O (0, 0) is called?
5. What is the ordinate of the ball of Arjun?

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