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SAMPLE PAPER 01 : PERIODIC TEST – 1 (2019 – 20)
CLASS – IX
MATHEMATICS

T.T. 1:30   M.M. 40

General Instructions:
1. All questions are compulsory.
2. Question paper is divided into four sections: Section A contains 10 Objective type questions each carry 1 mark, Section B contains 3 questions each carry 2 marks, Section C contains 4 questions each carry 3 marks and Section D contains 3 questions each carry 4 marks.

SECTION – A (1 mark each)

1. On rationalizing the denominator of $\dfrac{1}{2+\sqrt{3}}$, we get

    (a) $2-\sqrt{3}$ (b) $\sqrt{3}-2$ (c) $2+\sqrt{3}$ (d) $-\sqrt{3}-2$

2. The value of $125^{\frac{-1}{3}}$ is :

    (a) $\dfrac{1}{5}$ (b) $\dfrac{1}{25}$ (c) $\dfrac{1}{15}$ (d) $\dfrac{1}{125}$

3. $(x + 8)(x – 10)$ in the expanded form is:
    (a) $x^2 – 8x – 80$ (b) $x^2 – 2x – 80$ (c) $x^2 + 2x + 80$ (d) $x^2 – 2x + 80$

4. If $x – 2$ is a factor of $x^3 – 3x +5a$ then the value of a is:

    (a) 1   (b) –1   (c) $\dfrac{2}{5}$ (d) $\dfrac{-2}{5}$

5. On dividing $x^3 + 3x^2 + 3x +1$ by $5 + 2x$ we get remainder:

    (a) $\dfrac{8}{27}$ (b) $\dfrac{27}{8}$ (c) $-\dfrac{27}{8}$ (d) $-\dfrac{8}{27}$

6. The point (–5, 4) and (4, –5) are situated in
    (a) same quadrant   (b) I and III quadrant, respectively
    (c) Different quadrants   (d) IV and II quadrant, respectively

7. The point where the two axes meet, is called
    (a) x-coordinate   (b) y- coordinate   (c) quadrant   (d) origin

8. The equation of x –axis is of the form
    (a) x = 0   (b) y = 0   (c) x + y = 0   (d) x = y

9. The graph of the y = x passes through the point

    (a) $\left(\dfrac{3}{2},-\dfrac{3}{2}\right)$ (b) $\left(0,\dfrac{3}{2}\right)$ (c) (1, 1)   (d) $\left(\dfrac{-1}{2},\dfrac{1}{2}\right)$

10. The graph of the linear equation 2x + 3y = 6 is a line which meets the x axis at the point
    (a) (2, 0)   (b) (0, 3)   (c) (3, 0)   (d) (0, 2)

SECTION – B (2 marks each)

11. Show that 1.272727……. can be expressed in the form of $\dfrac{p}{q}$, where p and q are integers and $q \neq 0$.

12. In which quadrant or on which axis do each of the points (– 2, 4), (3, – 1), (– 1, 0) and (– 3, – 5) lie?

13. If the point (3, 4) lies on the graph of $3y = ax + 7$, then find the value of *a.*

SECTION – C(3 marks each)

14. Represent the real number $\sqrt{2}, \sqrt{3}, \sqrt{5}$ on a single number line.

15. The Autorikshaw fare in a city is charged Rs 10 for the first kilometer and @ Rs 4 per kilometer for subsequent distance covered. Write the linear equation to express the above statement. Draw the graph of the linear equation.

16. Write all five postulates of Euclid's. Explain 5th postulate with diagram.

17. Without actual division, prove that $2x^4 – 5x^3 + 2x^2 – x + 2$ is divisible by $x^2 – 3x + 2$.

SECTION – D (4 marks each)

18. The polynomial f(x)= $x^4 – 2x^3 + 3x^2 – ax + b$ when divided by (x – 1) and (x + 1) leaves the remainders 5 and 19 respectively. Find the values of a and b. Hence, find the remainder when f(x) is divided by (x – 3).

19. Three vertices of a rectangle are (4, 2), (– 3, 2) and (– 3, 7). Plot these points and find the coordinates of the fourth vertex.

20. Solve the equation $2x + 1 = x – 3$, and represent the solution(s) on
   (i) the number line,
   (ii) the Cartesian plane.