NAAHAR PUBLIC SCHOOL CBSE SENIOR SECONDARY, VILLUPURAM
ACADEMIC YEAR-2022-23
PERIODIC TEST- IV EXAMINATION (DECEMBER'22)

CLASS: IX **DATE: 22-12-2022**
SUBJECT: MATHS **MARKS: 80**
SUBJECT TEACHER: Mrs. SHEELA **DUR: 2hrs 30mins**

I. CHOOSE THE BEST ANSWER: **20 x 1 =20**

1. Every rational number is:

a. Whole number b. Natural number c. Integer d. Real number

2 Which of the following are irrational numbers?

a. √23 b. √225 c. 0.3796 d. 7.478478

3. √9 is a _____ number.

a. Rational b. Irrational c. Neither rational or irrational d. None of the above

4. Can we write 0 in the form of p/q?

a. Yes b. No c. Cannot be explained d. None of the above

5. Find the degree of polynomial √2 .
a) 2 b) 0 c) 1 d) 1 / 2

6. Zero of the polynomial p(x) = cx + d is
a) –d b) –c c) $\frac{d}{c}$ d) – $\frac{d}{c}$

7. The degree of $4x^3-12x^2+3x+9$ is
a. 0 b. 1 c. 2 d. 3

8. $x^2 – x$ is _____ polynomial.
a. Linear b. Quadratic c. Cubic d. None of the above

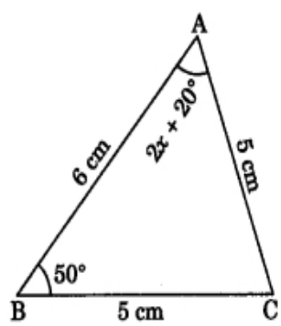
9. x = 3 and y = -2 is a solution of the equation 4px – 3y = 12, then the value of p is
a) 0 b) $\frac{1}{2}$ c) 2 d) 3

10. The solution of equation x-2y = 4 is:
a) (0,2) b) (2,0) c) (4,0) d) (1,1)

11 . x = 9, y = 4 is a solution of the linear equation:
a) 2x + y = 17 b) x + y = 17 c) x + 2y = 17 d) 3x – 2y = 17

12. The solution of equation x - 2y = 4 is:
a) (0,2) b) (2,0) c) (4,0) d) (1,1)

13. In given figure, the measure of ∠BAC is



(a) 60° (b) 50° (c) 70° (d) 80°

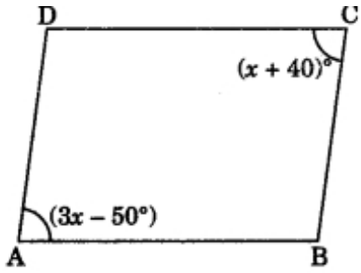
14. In ΔABC, AB = AC and ∠B = 50°, then find ∠C.
(a) 50° (b) 40° (c) 80° (d) 120°

15. If ABC is an equilateral triangle, then each angle equals to:
a) 90° b)180° c) 120° d) 60°

16. If E and F are the midpoints of equal sides AB and AC of a triangle ABC. Then:
a) BF=AC b) BF=AF c) CE=AB d) BF = CE

17. The quadrilateral whose all its sides are equal and angles are equal to 90 degrees, it is called:
a. Rectangle b. Square c. Kite d. Parallelogram

18. In the given figure, ABCD is a parallelogram.



Find the value of x.
(a) 25° (b) 60° (c) 75° (d) 45°

19. The sum of all the angles of a quadrilateral is equal to:
a. 180° b. 270° c. 360° d. 90°

20. The angles of quadrilateral are in the ratio 4:5:10:11. The angles are:
a. 36°, 60°, 108°, 156° b. 48°, 60°, 120°, 132°
c. 52°, 60°, 122°, 126° d. 60°, 60°, 120°, 120°

II. TWO MARKS: **8 x 2 = 20**

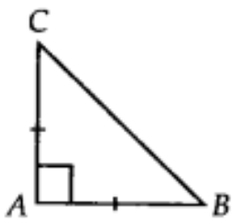
21. Simplify i) $(3 + \sqrt{3})(3 - \sqrt{3})$

22 . Visualize 3.765 on the number line, using successive magnification.

23. Find the value of the polynomial $5x - 4x^2 + 3$ at (i) x = 0 (ii) x = – 1

24. Find the remainder when $x^3 - ax^2 + 6x - a$ is divided by x – a.
25. Use suitable identities to find the product: (x + 4)(x + 10)

26. Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3 y = k.
27. ABC is a right angled triangle in which ∠A =90° and AB = AC, find ∠B and∠C.



28. The angles of quadrilateral are in the ratio 3 : 5 : 9 : 13. Find all the angles of the quadrilateral.

III. THREE MARKS: **8 x 3 = 24**

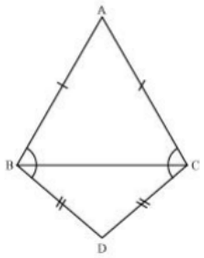
29. Use the Factor Theorem to determine whether g (x) is a factor of p (x) in each of the following cases
(i) p (x)= $2x^3 + x^2 - 2x - 1$, g (x) = x + 1
(ii) p(x)= $x^3 + 3x^2 + 3x + X$ g (x) = x + 2

30. Rationalise the denominator of the following $i) \frac{1}{\sqrt{5}+\sqrt{2}}$ $ii) \frac{1}{\sqrt{7}-\sqrt{2}}$

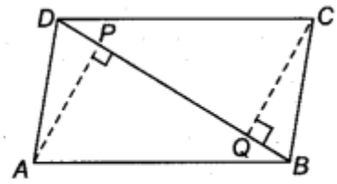
31. Factorise (i) $12x^2 - 7x + 1$ (ii) $2x^2 + 7x + 3$

32. Evaluate the following using suitable identities (i) $(99)^3$ (ii) $(102)^3$

33. ABC and DBC are two isosceles triangles on the same base BC (see the given figure). Show that ∠ABD = ∠ACD.



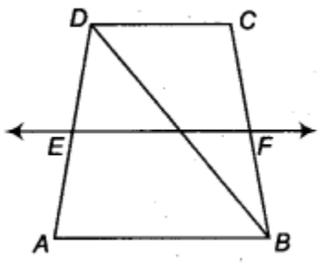
34. ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on diagonal BD (see figure). Show that



(i) $\Delta APB \cong \Delta CQD$ (ii) $AP = CQ$.

35. If the point (3, 4) lies on the graph of the equation 3y = ax + 7, find the value of a.

36. ABCD is a trapezium in which AB | | DC, BD is a diagonal and E is the mid-point of AD. A line is drawn through E parallel to AB intersecting BC at F (see figure). Show that F is the mid-point of BC.



IV. FOUR MARKS : 5 x 4 = 20

37. Without actually calculating the cubes, find the value of each of the following

(i) $(- 12)^3 + (7)^3 + (5)^3$

(ii) $(28)^3 + (- 15)^3 + (- 13)^3$

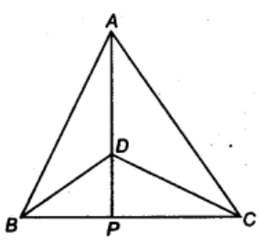
38. ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that

(i) D is the mid-point of AC

(ii) MD ⊥ AC (iii) CM = MA = 12 AB

39. Show how √5 can be represented on the number line.

40. ΔABC and ΔDBC are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC (see figure). If AD is extended to intersect BC at P, show that



Show that

(i) △ABD = △ACD
(ii) △ABP = △ACP
(iii) AP bisects ∠A as well as ∠D

41. Draw the graph of y = 3x