

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. $\sqrt{23}$ b. $\sqrt{225}$ c. 0.3796 d. 7.478478

3. $\sqrt{9}$ 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 $\sqrt{2}$.

- 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 $\angle BAC$ is

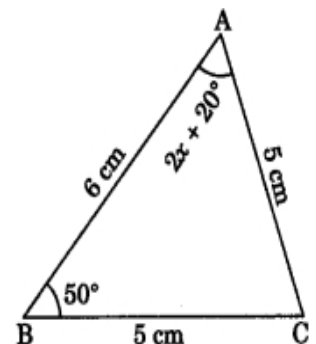
- (a) 60° (b) 50° (c) 70° (d) 80°

14. In $\triangle ABC$, $AB = AC$ and $\angle B = 50^\circ$, then find $\angle C$.

- (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.

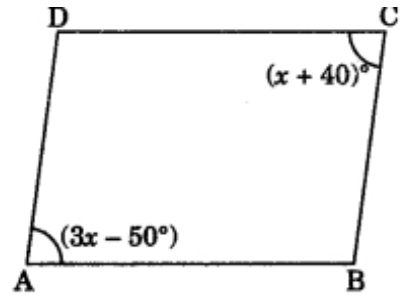
- (a) 25° (b) 60° (c) 75° (d) 45°

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. $36^\circ, 60^\circ, 108^\circ, 156^\circ$ b. $48^\circ, 60^\circ, 120^\circ, 132^\circ$
c. $52^\circ, 60^\circ, 122^\circ, 126^\circ$ d. $60^\circ, 60^\circ, 120^\circ, 120^\circ$



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.

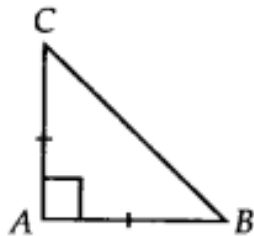
23. Find the value of the polynomial $5x - 4x^2 + 3$ at (i) $x = 0$ (ii) $x = -1$

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 $2x + 3y = k$.

27. ABC is a right angled triangle in which $\angle A = 90^\circ$ and $AB = AC$, find $\angle B$ and $\angle C$.



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

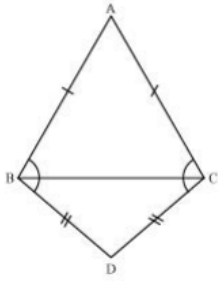
(ii) $p(x) = x^3 + 3x^2 + 3x + X, g(x) = x + 2$

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

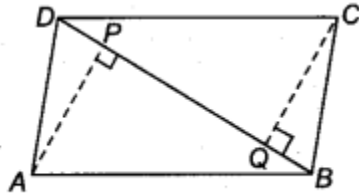
31. Factorise (i) $12x^2 - 7x + 1$ (ii) $2x^2 + 7x + 3$

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 $\angle ABD = \angle ACD$.



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

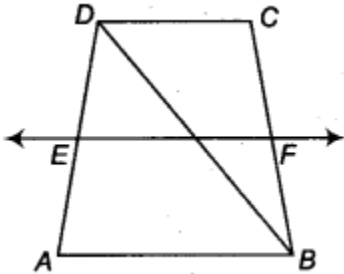


(i) $\triangle APB \cong \triangle CQD$

(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 $AB \parallel DC$, 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) $(28)^3 + (-15)^3 + (-13)^3$

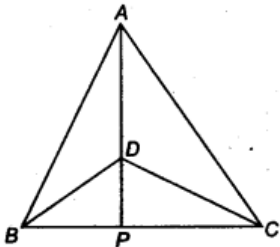
38. ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that

(i) D is the mid-point of AC

(ii) $MD \perp AC$ (iii) $CM = MA = \frac{1}{2} AB$

39. Show how $\sqrt{5}$ can be represented on the number line.

40. $\triangle ABC$ and $\triangle DBC$ 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) $\triangle ABD = \triangle ACD$

(ii) $\triangle ABP = \triangle ACP$

(iii) AP bisects $\angle A$ as well as $\angle D$

41. Draw the graph of $y = 3x$