CLASS - IX

1) Which is the missing term in the sequence 1,3,6,10,15,_____

1)18 2)21 3)20 4)32

2) Average of first 100 natural numbers is_____

1)50.5 2)100.5 3)28.5 4)58.5

3) Degree of $(1+x)(1+x^2)(1+x^4)(1+x^8)$ is _____

1)8 2)15 3)9 4)64

4) Number of quadratic factors for $(x^4+x^2+1)^2$ is _____

1)4 2)8 3)2 4)0

5) $(2+\sqrt{3})^2(2-\sqrt{3})^2(1+\sqrt{2})^2(1-\sqrt{2})^2$ = _____

1)18 2)64 3)1 4)0

6) $3x^2+4y^2=10,\ 4x^2+3y^2=11$ *then* $x^2+y^2=$ _____

1)121 2)21 3)3 4)7

7) $x+x^{-1}=2.5$ *then* $x^3+x^{-3}=$ _____

1)8.125 2)6.125 3)1 4)7.25

8) Distance between (3, -4) and (6, 0) is_____units

1)2 2)7 3)5 4)8

9) $\frac{a+b}{c+d}=\frac{a-b}{c-d} \Rightarrow ad-bc+1=$ _____

1) 0 2)1 3)2 4)-2

10) $x^4-x^2+1=0 \Rightarrow \left(x^2+x^{-2}\right)^8=$ _____

1)1 2)0 3)16 4)256

11) $2(x-1)(x-7)=ax^2+bx+c \Rightarrow 4a+2b+c=$ _____

1)40 2)-10 3)0 4)-12

12) $\sqrt{x}+\sqrt{y}=\sqrt{4+2\sqrt{3}} \Rightarrow x+y=$ _____ number.

1)even 2)odd 3)odd prime 4)even prime

13) Area of an equilateral triangle whose height is $\sqrt{12}$ is_____Sq.units

1) $3\sqrt{3}$ 2) $2\sqrt{3}$ 3) 3 4) $4\sqrt{3}$

14) In a right-angled triangle, the legs are 3, 4. Then its perimeter is_____

1)12 2)10 3)14 4)7

15) Area of a semi-circle is 18π Sq.u. Its circumference is _____

1) $\pi+2$ 2) $6\pi+12$ 3) $9\pi+3$ 4) 3π

16) Two concentric circles have radii 6 ,8 units. Then Area of ring shape formed is _____Sq.units nearly

1)88 2)64 3)72 4)100

17) $\frac{1}{4+2\sqrt{3}}+\frac{1}{4-2\sqrt{3}}=x$ *then* $x^9-2^9=$ _____

1)1 2)0 3) $7\sqrt{3}$ 4) $\sqrt{3}$

18) A square has diagonal $\sqrt{8a^2}$ then its perimeter exceeds side by_____

1) $6a\sqrt{2}$ 2)2a 3)6a 4) $a\sqrt{2}$

19) Number of positive integer divisors of 200 is_____

1)12 2)10 3)6 4)18

20) 1 – 2+3 – 4+5 – 6+…… … – 2020=_____

1) Positive odd integer 2)Positive even integer
3)Negative even integer 4)Negative odd integer

21) Number of positive integer solutions of $x^{x+1}=8$ is_____

1)3 2)2 3)4 4)None of these

22) $x\sqrt{3}+y\sqrt{2}=\sqrt{18}+\sqrt{12}$ *then* $x^2+y^2-xy=$ _____, *where* $x, y \in N$

1)7 2)10 3)4 4)0

23) $\frac{1+x^3}{1+x}+\frac{1+y^3}{1+y}+\frac{1-x^3}{1-x}+\frac{1-y^3}{1-y}=$

1) x^2+y^2-1 2) $2(x^2+y^2+2)$

3) $2x^2+2y^2-3$ 4) x^2+y^2-2

24) $\left[\left(2^{0.5}+3^{0.5}\right)^2-5\right]^2=$ _____

1)24 2)18.5 3) $\sqrt{6}$ 4) $2\sqrt{6}$

25) $\left[1+x+x^2+.....+x^{n-1}\right]\left[x-1\right]+1=$ _____

1) x^n 2) x^n-2 3) $\frac{x^n}{x-1}$ 4) $x^{n-1}-1$

26) *if* $x^2+y^2=1$ *then* $(3x-4x^3)^2+(4y^3-3y)^2=$ _____

1)0 2)1 3)12 4)-1

27) Reflection of (3, 4) in y-axis is_____

1)(-3, 4) 2)(4, 3) 3)(-4, -3) 4)(0, 4)

28) Number of straight lines that can be made pass through (1, 1), (2, 8)is_____

1)1 2)2 3)4 4) Infinite

29) Number of circles that can pass through (0, 0), (4, 0) is_____

1)One 2)Two 3)Zero 4) infinite

30) P is an interior point of rectangle ABCD whose length is 8 and breadth is 6.

Then $\frac{PA^2+PC^2-PD^2}{PB^2}=$ _____

1)2 2)1 3)3 4)8

31) The point equidistant from (3, -4) (4, 3) (4, -3) (-4, 3) is_____

1)(1, 1) 2)(0, 1) 3)(0, 0) 4)(-1, -1)

32) $1^2-2^2+3^2-4^2+5^2-6^2+.....+99^2-100^2=$ _____

1)4090 2)-5050 3)-8000 4)5010

33) $\sqrt{x\sqrt{x\sqrt{x\sqrt{.....\infty}}}}=y$ *Then* $y^2-xy=$ _____

1)0 2) x^2 3) $\sqrt{x}$ 4) $x+1$

34) " Every even number greater than 4 can be written as sum of two primes" is a Conjecture stated by ___

1) Euclid 2)Gold Bach 3)Pythagerous 4)Aryabhatta

35) Number of irrational numbers between 2021 and 2022 is _____

1) zero 2)one 3)two 4)infinite

36) $6x^\circ+20^\circ,\ 2x^\circ-40^\circ,\ 3x^\circ-20^\circ$ form angles of a triangle then $3x^\circ-50^\circ=$_____ degrees

1) 10° 2) 20° 3) 12° 4) 18°

37) Angle between diagonals of a rhombus is θ°. Then $2\theta^\circ-150^\circ=$_____degrees

1) 30° 2) 20° 3) 40° 4) 10°

38) Mean proportional of x^2y^3 and $x^{-3}y^{-2}$ is_____

1) $x^{-1/2}y^{-1/2}$ 2) $x^{-1/2}y^{1/2}$ 3) xy 4) 1

39) Volume of a cuboid is V. if length, breadth, and height are each increased by 40% then volume is_____

1) $\frac{343}{100}v$ 2) $\frac{343}{125}v$ 3) $\frac{4}{5}v$ 4) $\frac{110}{43}v$

40) Ends of a diameter of a circle are (3, 0) (0, 4). Its circumference is_____

1) 5π 2) 2π 3) π 4) $5\pi/2$

41) X % of (Y + 1) equals 2X % of 3Y then Y = _____

1)1 B)0.1 C)0.2 D)0.8

42) Median of first 25 natural numbers is_____

1)12 2)12.5 3)13.5 4)13

43) Maximum rectangle inscribed in a circle will be _____

1) Parallelogram 2) Rhombus

3) Square 4) Trapezium

44) X + Y =8; X, Y > 0 then maximum value of XY = _____

1)32 2)64 3)16 4)18

45) ABCD is a Quadrilateral. EFGH is a Quadrilateral formed by mid points of sides of ABCD. Then which is correct Statement

1) EFGH is Square 2)EFGH is parallelogram

3)EFGH is Scalan Quadrilateral 4) EFGH is Rectangle

46) Which of the following doesn't have inscribed circle?

1)Rectangle 2) square

3) Rhombus 4) None of these

47) $(x-1)(x-2)(x-3) = ax^3 + bx^2 + cx + d$ *then* $abcd =$ _____

1)396 2)268 3)-108 4)-132

48) The remainder when $x^3 - 8x + 1$ is divided by x -1 is _____

1)-3 2)-6 3)11 4)0

49) Zero of a polynomial $6(x^2 - 8x + 15)$ is_____

1)3 2)4 3)15 4)0

50) Which of the following statement is false

1)7^{th} root of 128 is 4^{th} root of 16

2)4^{th} root of 81 is 5^{th} root of 243

3)10^{th} root of 1024 is 6^{th} root of 64

4)9^{th} root of 243 is 12^{th} root of 81

51) Let $X = 1 + p + p^2 + \ldots\ldots\ldots\ldots + p^{2020}$ *and* $p + 1 = 0$ *Then* $\left(\frac{x^3 - p^2}{x^2 - p}\right)^2 =$ _____

1)1 2)4 3)0 4)8

52) Let $a * b = a + b - ab$. If $a * e = 2a$ then e = _____

1) a 2) $\frac{a}{1-a}$ 3) $\frac{a+1}{a}$ 4) $\frac{a-1}{a}$

53) p, q, r are three natural numbers, exactly two of them are odd. Then which is correct statement ?

1) $p + q + r + pq + qr + rp$ *is odd*

2) $pq + qr + rp$ *is even*

3) p^3qr *is odd*

4) $p^2 + qr$ *is even*

54) x + 3y = 100 where x and y are positive integers. The number of ordered pairs satisfying above equation is _____

1)34 2)97 3)33 4)87

55) ABCD is a square of side 2. The area of maximum circle that can be inscribed in it is _____Sq.u

1) π 2) 2π 3) $\pi/2$ 4) $\pi/4$

56) An eight digit number is a multiple of 73 and 137 if the second digit from left is 7, the 6th digit from left is _____

1)7 2)9 3)5 4)3

57) An equilateral triangle has length of median $3\sqrt{3}$. then sum of areas of semi-circles on each side of triangle as diameter is _____

1) $\frac{3\pi}{4}$ 2) $\frac{87\pi}{7}$ 3) $\frac{27\pi}{3}$ 4) $\frac{27\pi}{2}$

58) Golden triangle is a triangle with _____

1) angles $60^0, 30^0, 90^0$ 2) angles $45^0, 45^0, 90^0$

3) angles $72^0, 72^0, 36^0$ 4) sides $1, 2, \sqrt{3}$

59) The Mathematician who first calculated the value of π to first 4 decimal places.

1) Gauss 2)Aryabhatta 3)Bhaskara 4) Renedescarte

60) $\left(1\frac{1}{2}\right)\left(1\frac{1}{3}\right)\left(1\frac{1}{4}\right)\left(1\frac{1}{5}\right)$.....400 *terms* = ...

1)207 2)300 3)301 4)201