CLASS IX

1) $1 - 2 + 3 - 4 + \ldots\ldots\ldots + 2023 - 2024 + 2025 = \ldots\ldots$

     1) 1013   2) 2025   3) 1014   4) 2026

2) Triangle formed by vertices (3,3), (0,3), (3,0) is _____ triangle.

     1) Isosceles Right angled   2) Scalene   3) Equilateral   4) None of these

3) Number of prime numbers between 2 and 99 is ......

     1) 20   2) 24   3) 18   4) 17

4) $S = 111\ldots\ldots11$ (100 digits) $- 2222\ldots\ldots22$ (50 digits), then the sum of digits of $S = \ldots\ldots$

     1) 400   2) 848   3) 629   4) 450

5) Number of positive integral divisors of 5×10^2 will be

     1) 12   2) 16   3) 8   4) 49

6) The remainder when $x^3 - 6x^2 + 11x - 6$ is divided by $x - 4$ is ....

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

7) On dividing a number by 56, we get 29 as reminder. On dividing the same number by 8, what will be the reminder ?

     1) 4   2) 6   3) 5   4) 2

8) The German Mathematician who first proved that any polygon can be transformed into any other polygon of equal area by cutting it into finite number of pieces.

     1) Henry Emest Dudency   2) David Hilbert
     3) Descartes   4) Euclid

9) The ratio of the angles in a golden triangle.

     1) 1:1:1   2) 1:1:4   3) 1:2:3   4) 1:2:2

10) A boy was asked to multiply a number by 25. He, instead multiplied the number by 52 and got the answer 324 more than the correct answer. The number to be multiplyed is .....

     1) 12   2) 8   3) 14   4) 22

11) $\left(x^2 + y^2 - z^2\right)^2 - \left(x^2 - y^2 + z^2\right)^2 = $ _____

     1) $4x^2y^2 - 4x^2z^2$ 2) $4x^2y^2z^2$ 3) $x^4 + y^4 + z^4$ 4) 0

12) *If* $a = 3 + 2\sqrt{2}$, *Then what is the value of* $\dfrac{(a^6 - a^4 - a^2 + 1)}{a^3}$

     1) 198   2) 204   3) 192   4) 210

13) The three sides of a right angled triangle are x, x+1 and 5. Find x and the area if the longest side is 5.

     1) 3,6   2) 4,5   3) 3,5   4) 5,6

14) Number of factors with rational coefficients for $x^4 + x^2 + 1$ is ....

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

15) Number of terms in the final product of $1 + a$, $1 + a^2$, $1 + a^4$, $1 + a^8$, $1 - a$

     1) 12   2) 4   3) 2   4) 24

16) $10a^2 + 11b^2 = 22$ and $11a^2 = 78 - 10b^2$, then $a^2 + b^2 = $ ......Number

     1) Natural   2) Irrational   3) Rational   4) Negative

17) Number of real numbers between $\sqrt{2}$ *and* $\sqrt{5}$ will be ....

     1) 1   2) 2   3) 0   4) Infinite

18) Number of straight lines that can be made pass through (0,0) and (2023,2024)is

     1) 2023   2) 2024   3) 0   4) 1

19) Which of the following is a perfect square (a,b,c > 0)

     1) $a^2b^3c^2$ 2) a^6b^4c 3) $(abc)^3(abc)^{56}$ 4) $\sqrt{abc}\,(abc)^{\frac{3}{2}}$

20) Father of Geometry is ....

     1) Pythagorous   2) Euclid   3) Newton   4) Descartes

21) No of integer pairs (x,y) satisfying the equation x+y+xy = 0 will be

     1) 0   2) 2   3) 5   4) Infinite

22) In a triangle ABC , two sides are 2 and 8 and third side is also an integer. Then the number of such triangles will be

     1) 7   2) 10   3) 6   4) 3

23) Number of 5 digit numbers which are multiples of 13 is ......

     1) 7692   2) 9691   3) 6923   4) 7876

24) ABC is a triangle with vertices A = (1,2) , B = (2,1) C = (3,6). If R is a point inside the triangle ABC such that it divides total area of triangle ABC in to 3 equal parts, then sum of the co-ordinates of 'R' will be ...

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

25) Which of the following is equal to x^3 ?

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

26) Sum of the first 200 odd natural numbers is ....

     1) 4×10^4 2) 2×10^5 3) 8×10^3 4) 5×10^6

27) $\dfrac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}} = $?

     1) $\sqrt{5}$ 2) $\sqrt{2}$ 3) $\sqrt{6}$ 4) $\sqrt{3}$

28) The value of $\sqrt{10+\sqrt{25+\sqrt{108+\sqrt{154+\sqrt{225}}}}}$ in :

     1) 5   2) 2   3) 3   4) 4

29) How many of the following numbers are divisible by 132 ?
     6336, 264, 396, 462, 792, 968, 2178, 5184

     1) 3   2) 4   3) 5   4) 1

30) Number of volumes in the book " The Elements" written by Euclid....

     1) 23   2) 13   3) 14   4) 24

31) When $(x^4 - 3x^3 + 2x^2 - 5x + 7)$ is divided by $(x-2)$ then the reminder is :

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

32) In a code language SHIP - SEA = 27 ; BOX - TAB = 18 then BUS - CAR = ...

     1) 16   2) 24   3) 18   4) 20

33) The Ratio in which the point (1,3) divide the line segment joining the points (-1,7) and (4,-3) is .....

    1) 2 : 5   2) 2 : 3   3) 3 : 5   4) 4 : 3

34) find the distance between the points (a, b) ; (-a, -b)

    1) $2\sqrt{a^2+b^2}$ 2) $2\sqrt{a^2-b^2}$ 3) $-2\sqrt{a}$ 4) None

35) The Mathematician who developed relation between Algebraic equations and Geometric curves and figures is ....

    1) Rene - Descartes   2) Euclid
    3) Bhaskara   4) Brahma Guptha

36) The three rational numbers between 3 & 4 are :

    1) $\dfrac{5}{2},\dfrac{6}{2},\dfrac{7}{2}$ 2) $\dfrac{13}{4},\dfrac{14}{4},\dfrac{15}{4}$ 3) $\dfrac{12}{7},\dfrac{13}{7},\dfrac{14}{7}$ 4) $\dfrac{11}{4},\dfrac{12}{4},\dfrac{13}{4}$

37) A rectangle of dimensions l, b (l>b) satisfying $x^2-7x+12=0$ is inscribed in a circle of area _____

    1) 6.25π 2) 3.75π 3) 1.25π 4) 5π

38) $x+y+xy=\dfrac{3}{2}$, $y+z+yz=\dfrac{1}{5}$, $z+x+zx=\dfrac{1}{3}$ *then*

    $1+x+y+z+xy+yz+zx+xyz=$ _____

    1) $\dfrac{11}{35}$ 2) $\dfrac{41}{3}$ 3) 4   4) 2

39) In $\triangle ABC$, AB=7cm, BC=10cm & AC=8cm if AD is the angle bisector of $\angle BAC$, where D is a point on BC, then $\dfrac{DC}{4}(in\ cm)$ is equal to :

    1) $\dfrac{14}{3}$ 2) $\dfrac{4}{3}$ 3) $\dfrac{11}{3}$ 4) $\dfrac{7}{3}$

40) The point where the triangle forms the right angle in the right angled triangle is known as the _____ .

    1) In-centre   2) Circum-centre
    3) Centroid   4) Ortho-centre

41) In a isosceles triangle ABC, if AB=AC=26 cm and BC=20 cm. The area of the triangle ABC is......

     A) $180\,cm^2$ B) $240\,cm^2$ C) $220\,cm^2$ D) $260\,cm^2$

42) The value of $\dfrac{\sqrt{80}-\sqrt{112}}{\sqrt{45}-\sqrt{63}}$ is

     1) $\dfrac{3}{2}$ 2) $\dfrac{2}{5}$ 3) $\dfrac{4}{3}$ 4) $\dfrac{5}{3}$

43) The value of 'k' for which the points (7, -2), (5, 1), (3, -k) are collinear

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

44) In the area of the trapizium whose parallel sides are 4cm, 6cm is $40\,cm^2$, then the distance between the parallel side is :

     1) 6cm   2) 8cm   3) 4cm   4) None

45) Average of first 20 even natural numbers is _____

     1) 21   2) 22   3) 19   4) None

46) $(7+4\sqrt{3})^2(3+2\sqrt{2})^2(7-4\sqrt{3})^2(3-2\sqrt{2})^2 = ...$

     1) 0   2) 1   3) $(26-24\sqrt{6})$ 4) $10-6\sqrt{6}$

47) $\left(1-\dfrac{1}{2}\right)\left(1-\dfrac{1}{3}\right)\left(1-\dfrac{1}{4}\right).........\left(1-\dfrac{1}{2023}\right) = \dfrac{x}{4046}$ then $x^2-3x+2 = ...$

     1) 0   2) 1/2023   3) 3/47   4) 4/37

48) Find the missing term of the series

$\dfrac{1}{3}, \dfrac{2}{7}, \dfrac{3}{13}, \dfrac{4}{21}, \underline{\quad}, \dfrac{6}{43}$ is $\dfrac{x}{y}$ where x is relatively prime to y, then $y-6x=$

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

49) The coordinates of a point A, Where AB is the diameter of the circle whose center is (2, -3) & B is (1, 4).

     1) (3, 5)   2) (3, -10)   3) (5, 10)   4) (-3, -10)

50) Triplets of odd numbers (x,y,z) with $1 \leq x < y < z \leq 10$ are generated such that x+y+z is prime number. the number of such triplets will be .....

    1) 3   2) 5   3) 6   4) 8

51) *if* $x + y + z = 0$ *then* $\dfrac{x^2}{yz} + \dfrac{y^2}{xz} + \dfrac{z^2}{xy} + 4$ *is* _____ *number*

    1) even   2) prime   3) square   4) Odd cube

52) The next two numbers in the series 1,3,9,15,25,----,-----.

    1) 36,48   2) 35,49   3) 36,49   4) 35,48

53) In a $\triangle ABC$, points P, Q & R are taken or AB,BC and CA respectiely such that BQ = PQ and QC = QR, if $\angle BAC = 75°$ what is the measure of $\angle PQR$ (in degrees)

    A) 75   B) 50   C) 30   D) 40

54) If the diagonal of a square is 'a' units what is the diagonal of the square whose area is double that of the 1st square

    1) $2a$ 2) a^2 3) $\sqrt{2}a$ 4) $\dfrac{a^2}{2}$

55) Sum of the Kaprekar's Constant and Ramanujan number ....

    1) 7900   2) 7903   3) 7803   4) 7309

56) The circumference of the circle is inscribed in an equilateral triangle is 88cm. The semi-perimeter (in cm) of the triangle _____ (use $\pi = \dfrac{22}{7}$)

    1) $44\sqrt{3}$ 2) $42\sqrt{3}$ 3) $66\sqrt{3}$ 4) $84\sqrt{3}$

57) The base of the parallelogram is twice its height if the area is 392 sq.m. what is its height

    1) 12m   2) 24m   3) 14m   4) 28m

58) The two adjacent sides of a parallelogram are 12cm and 5cm respectively. If one of the diagonals is 13cm long, then what is the area of the parallelogram ?

1) $60\,cm^2$ 2) $30\,cm^2$ 3) $75\,cm^2$ 4) $25\,cm^2$

59) A number leaves a remainder 2 when divided by 6. Then the sum all possible remainders when the same number is divided by 9 is ....

1) 15   2) 22   3) 12   4) 7

60) If point C be the mid point of a line segment AB, then write the relation among AC, BC and AB .

1) $AB = AC = \dfrac{1}{2}BC$ 2) $BC = AB = \dfrac{1}{2}AC$

3) $AC = BC = \dfrac{1}{2}AB$ 4) None