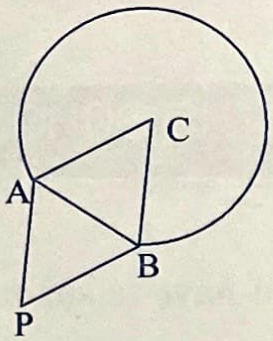
CLASS - X

1) $A\hat{P}B = 90^0$ and C is center of the circle.

$AB = \sqrt{8}$ Then area of circle = _____



1) 4π 2) 2π
3) π 4) 8π

2) Observe the pattern of the numbers.

(4, 3, 18), (5, 12, 152) , (8, x, 86) Then $x =$

1) 7 2) 9 3) 10 4) 6

3) Sum of first 2018 odd natural numbers is always a multiple of _____

1) 8 2) 1009 3) 2019 4) 207

4) $\frac{p\sqrt{2}+q\sqrt{3}}{r\sqrt{5}} = -3 \Rightarrow p^2+q^2+r^2 =$

1) 2 2) 3 3) 5 4) $(p+q+r)^2$

5) Difference of second and first perfect numbers is _____

1) multiple of 11 2) multiple of 5
3) multiple of 6 4) multiple of 7

6) Missing term in the sequance $\frac{3}{5}, \frac{6}{17}, \frac{9}{37}, \frac{12}{65}, —, \frac{18}{145}$

1) $\frac{15}{101}$ 2) $\frac{15}{79}$ 3) $\frac{16}{77}$ 4) $\frac{17}{69}$

7) PQ = 13cm is diameter of a circle and PR = 5cm is the chord drawn. The circle is shaded leaving the ΔPQR portion. Then area of the shaded portion is apporcimately equal to to _____sq.cm

1) 102 2) 30 3) 118 4) 106

8) A right triangle has a leg 600 and hypotenuse 10^3. The length of perpendicular drawn from vertex to hypotenuse will be _____

1) 15×2^5 2) $17 \times \frac{10^3}{3}$ 3) $5 \times 3^4 \times 2$ 4) $25 \times 2^2 \times \frac{3}{7}$

9) If $x(x^2-yz)+y(y^2-zx)-z(xy-z^2)=0$ where x, y, z are distinct then $(xz^{-1}+yz^{-1})^2 =$

1) less than 2 2) greater than 5 3) less than 0.5 4) greater than 1

10) $a-p^8q^6=0,\ b-q^8p^6=0,\ c-p^{10}q^{10}=0$ then 6th root of $abc=p^mq^n$ satisfies

1) 3m - 2n = 4 2) m + 2n = 15 3) m + n = 6 4) 5m - n = 20

11) $8a^2+7b^2=15,\ 7a^2+8b^2=30$ then $\frac{(\sqrt{3}-b)(\sqrt{3}+b)}{a}=$ _____

1) 2a + b 2) a 3) b 4) a + 2b

12) No. of circles passing through all the points (a, b + c), (b, c + a), (c, a + b) is _____ $(a\neq b\neq c)$

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

13) No. of linear factors with real coefficients for x^4+x^2+1 is _____

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

14) $\log_{10} Tan1^0+\log_{10} Tan2^0+\log_{10} Tan3^0+.....+\log_{10} Tan89^0=$ _____

1) 1 2) 89 3) 2 4) 0

15) $x+y\sqrt{7}+z\sqrt{5}=0;\ x, y, z\in z$ then $x^2+y^2+z^2+3$ is

1) Divisible by 6 2) divisible by 5 3) divisible by 3 4) divisible by 11

16) Radius of incircle of an equilateral triangle of side $\sqrt{12}$ is _____

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

17) Average of first 100 odd natural numbers is x, average of first 50 even natural numbers is y. Then $2y-x=$ ___

1) 1 2) 0 3) 2 4) $\frac{101}{50}$

18) x, y, z are three consecutive natural numbers then $\frac{\log(1+xz)}{\log y}=$ _____

1) 3 2) 2 3) 1 4) 9

19) a, b > 0: $\sqrt{5\sqrt{5\sqrt{5\sqrt{.....\infty}}}} = a$ $b = \sqrt{2+\sqrt{2+\sqrt{2+\sqrt{.....\infty}}}}$ then $\frac{9(a-b^2)}{a+b^2} =$ _____

1) 2 2) 5 3) $\frac{9}{2}$ 4) 1

20) $\frac{(x+y-z)^2+(x+y+z)^2+(x-y-z)^2+(x-y+z)^2}{(x^2+y^2+z^2)} =$

1) Even prime 2) Even but not prime 3) odd prime 4) odd but not prime

21) Number of natural numbers between 1 and 750 which are neither divisible by 7 nor by 5 is n. Then 'n' is _____

1) multiple of 7 2) multiple of 4 3) multiple of 13 4) even

22) $2011x+2011^2y+2011^3z=1$, $2012x+2012^2y+2012^3z=1$, $2017x+2017^2y+2017^3z=1$ are three given equations in x, y, z. Then $3020z+\frac{y}{2}+5=$ _____

1) even multiple of 3 2) odd multiple of 7
3) odd multiple of 5 4) even multiple of 11

23) $1^2-2^2+3^2-4^2+5^2-6^2+.....+2017^2-2018^2=$ _____

1) Divisible by 2009 2) Divisible by 1009
3) Divisible by 2018 4) Divisble by 1019

24) The mathematician who used the word 'ardha-jya' from which the word 'sine' is derived

1) Euclid 2) Pythogoras 3) Bhaskara 4) Aryabhata

25) Number of n values $n \in N$ such that $\log_n 1024$ is also a natural number is .....

1) 4 2) 6 3) 8 4) 10

26) PE and QF are medians drawn to legs of a right angled ΔABC with sides 10, 8, 6.

Then $\frac{PE^2+QF^2}{PQ^2} =$

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

27) a, b, c are distinct real numbers such that $a+\frac{1}{b}=b+\frac{1}{c}=c+\frac{1}{a}$ then $a^2b^2c^2=$ ____

1) $\sqrt{3}$ 2) 3 3) 1 4) 9

28) The significance of number $2^6\times3^3+1$ is ____

1) Euler's number
2) Ramanujan number
3) Fermat's number
4) Archimedis number

29) Both roots are common for $4x^2+5x+6=0$ and $ax^2+bx+c=0$ and $abc=120 \Rightarrow 2a+3b+5c=$ ___

1) 152 2) 53 3) 35 4) 67

30) Sum of 'n' A.M's inserted between 28 and 158 is $2^6\times3\times31$. Then 'n' =

1) 38 2) 28 3) 64 4) 47

31) Indian mathematicians in their chronological order

A) Brahmagupta b) Aryabhata C) Bhaskara D) Mahaveera

1) A-C-B-D 2) B-A-D-C 3) C-A-B-D 4) D-A-B-C

32) In a statistical problem, with the usual notation $l=40, f_1=7, f_2=3, h=15$ and mode = 52 then $f_0=$

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

33) Number of integer ordered pairs (x,y) satisfying $xy+x+y-6=0$ is ____

1) 4 2) 7 3) 8 4) 10

34) $x=\frac{p}{q}$ a rational number, prime factorization of q is not in the form of $2^n.5^m$, n and m are non negative integers then x is as a

1) decimal expansion
2) terminating expansion
3) non- terminating
4) non- terminating repeatitions

35) $A=\{x/x^2-3x+2=0\}$, $B=\{x/x^2-5x+6=0\}$ then the set (A - B) U (B - A) represents

1) $\{x/x^2-4x+6=0\}$
2) $\{x/x^2-4x+3=0\}$
3) $\{x/x^2+4x-3=0\}$
4) $\{x/x^2+4x-6=0\}$

36) The quadratric equation whose one root is $(3+\sqrt{5})$

1) $x^2+3x+\sqrt{5}=0$ 2) $x^2+6x-4=0$

3) $x^2-6x+4=0$ 4) cannot be determined

37) $\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right).....\left(1+\frac{1}{62}\right)=$ _____

1) Multiple of 7 2) Multiple of 5

3) Multiple of 4 4) Multiple of 12

38) For a statistical data, both ogives are drawn to intersect at P. Then Median is represented by the point

1) P 2) at which the perpendicular drawn from P cut the x-axis

3) at whcih the perpendicular drawn from P cut the y-axis

4) cannot be determined

39) $A=\{x/x^2>10\}$; $B=\{x/0<4x-1<16\}$ then $A\cap B=$

1) Singleton 2) Null set 3) Infinite set 4) Finite set

40) $\sqrt{(1\times2\times3\times4)+1}=5$, $\sqrt{(2\times3\times4\times5)+1}=11$, $\sqrt{(3\times4\times5\times6)+1}=19$ then $\sqrt{(35\times36\times37\times38)+1}=$

1) 1451 2) 1751 3) 1331 4) 1631

41) If $\sin\theta-\cos\theta=1/2$ then the value of $\sin\theta+\cos\theta$

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

42) Which of the following is based on all the observations of the data

1) Range 2) Mean 3) Median 4) Mode

43) If $a_1x+b_1y+c_1=0$ and $a_2x+b_2y+c_2=0$ have infinite solutions then the truth statement is

1) $\frac{a_1}{a_2}=\frac{b_1}{b_2}\neq\frac{c_1}{c_2}$ 2) $\frac{a_1}{a_2}\neq\frac{c_1}{c_2}$ 3) $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ 4) $\frac{a_1}{a_2}=\frac{c_1}{c_2}$

44) D (2, 8), E (1, -7), F (6, 0) are the mid points of the sides of ΔABC, then area of ΔABC ..... sq. units

1) 136 2) 210 3) 108 4) 252

45) A lotus appears 2 feet height above water. It drowns at 4ft from its position after lown by wind. The total length of the lotous including stem must be ..... ft

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

46) The lines $px+3y-(p-3)=0$ and $12x+py-p=0$ have infinite solutions for the positive values of p namely

1) 9 2) 6,9 3) 6 4) 12

47) Perimeter of a rectangle is 32m. If the length (L) is increased by 2m, and breadth (B) decreased by one meter, the area of the plot remains the same. Then the length and breadth can be obtained from the following pair of equations:

1) L + B =16, L - 2B = 2 2) L + B = 32, L - 2B = -2

3) L - 2B + 2 = 0, L + B - 16= 0 4) L - B - 16 = 0, L + B - 2 = 0

48) $\sin\theta$ and $\cos\theta$ are the roots of $ax^2+bx+c=0$ then

1) $b^2=a^2-2ac$ 2) $b^2=a^2+2ac$ 3) $c^2=a^2+b^2-2ac$ 4) $a^2=b^2+c^2+2ab$

49) 2541 similar sperical balls are made out of a solid metalic cube whose edge is 44cm. Then diameter of each ball is _____ cm.

1) 4 2) 2 3) $2\sqrt{2}$ 4) 8

50) A sphere is melted and half of the molten liquid is used to form 11 identical cubes and the remaining half is used to form 7 identical spheres. The ratio of the side of the cube to the radius of the new small sphere is ____

1) $\left(\frac{4}{3}\right)^{1/3}$ 2) $\left(\frac{8}{3}\right)^{1/3}$ 3) $3^{1/3}$ 4) 2

51) $A=\{x/x=3m,\ m\in N\}$ $B=\{x/x=6m,\ m\in N\}$ $C=\{x/x=8m,\ m\in N\}$ then $A\cap B\cap C=$

1) $\{x/x=24m, m\in N\}$ 2) $\{x/x=16m, m\in N\}$

3) $\{x/x=8m, m\in N\}$ 4) $\{x/x=36m, m\in N\}$

52) If $(r\cos\theta-\sqrt{3})^2+(r\sin\theta-1)^2=0$ then $\frac{r\tan\theta+\sec\theta}{r\sec\theta+\tan\theta}=$

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

53) $\frac{2\sin\theta-\cos\theta}{\cos\theta+\sin\theta}=1$ then $\sec\theta=$

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

54) In an examination 65% students passed in Civics and 60% in History, 40% passed in both of these subjects, if 90 students failed in both the subjects then the total number of students is .....

1) 600 2) 650 3) 700 4) 750

55) Each item in the data 12, 8, 14, 22, 12, 16,20 is added 5, then the statical calculation that will not change

1) Range 2) Mean 3) Median 4) Mode

56) For the class intervels 10 - 25; 25 - 40; ..... 85 - 100 the respective cumulative frequencies are 2, 5, 12, 18, 24, 30. If the asumed mean is 47.5 the actual mean is

1) 56 2) 62 3) 59.5 4) 52.5

57) $Tan(A+B)=\sqrt{3}$ and $\sec(A-B)=\frac{2}{\sqrt{3}}$ then $\sin 2A+\tan 3B=$

1) 0 2) 1 3) 2 4) $\frac{1}{2}$

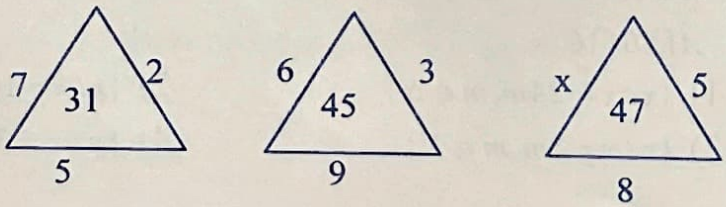
58) A sphere, a cylinder, a cone all are of the same radius and same height. Then the ratio of their volumes in the same order

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

59) The minimum value of $4\tan^2\theta+9\cot^2\theta$

1) 5 2) 10 3) 13 4) 12

60) Observe the pattern. Then $x=$



1) 8 2) 9
3) 6 4) 7