CLASS - IX

1. Which of the following is not rational number?

1) $\sqrt[3]{343}$ 2) $\sqrt{6400}$ 3) $\sqrt[4]{81.00}$ 4) $\sqrt[5]{3200}$

2. $3x^2+5y^2=11$ and $5x^2+3y^2=85$ then $(x+y)^2-2xy=$ _____

1) 7 2) 8 3) 4 4) 12

3. The number of Lines of Symmetry for a Square is n then n^3-4n^2+5 is.....

1) Prime number less than 11 2) Multiple of 3
3) Odd number greater than 5 4) Prime number greater than 10

4. If $p\sqrt{2}+q\sqrt{7}+2r\sqrt{11}=0$ where p, q, r are integers then 2p - q + 5r = _____

1) 8 (r + 1) 2) 2(p + 3) 3) 5q 4) 3p - q + 7

5. Arithmetic mean of first 200 odd numbers is

1) 2×5^4 2) 4×5^4 3) $2^3\times5^2$ 4) 4×5^3

6. $\frac{1}{5\times6}+\frac{1}{6\times7}+\frac{1}{7\times8}+.....+\frac{1}{2017\times2018}=\frac{x}{2018}$ then $\frac{x}{2013}=$ _____

1) 0.8 2) 0.75 3) 0.5 4) 0.2

7. If $\frac{x+y}{z}=-1$ then $\sqrt{\frac{x^2}{yz}+\frac{y^2}{zx}+\frac{z^2}{xy}-2}$ is equal to

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

8. $x^2-8x+1=0$ then $x^3+\frac{1}{x^3}=$ _____

1) 284 2) 488 3) 500 4) 324

9. 100^{th} term of sequence $\frac{1}{3},\frac{1}{7},\frac{1}{13},\frac{1}{21},.....$

1) $\frac{1}{10101}$ 2) $\frac{1}{99201}$ 3) $\frac{1}{11001}$ 4) $\frac{1}{90901}$

10. $\sqrt{6+\sqrt{6+\sqrt{6+\sqrt{.....\infty}}}} = y+1$ *then* $\frac{y-1}{y+3} =$ _____

1) $\frac{1}{5}$ 2) $\frac{1}{3}$ 3) $\frac{1}{4}$ 4) 0

11. $2^{\frac{1}{2}}+4^{\frac{1}{4}}+16^{\frac{1}{8}}+32^{\frac{1}{10}} = a\sqrt{b}$ where a,b $\in$ N and are relatively prime then $\frac{a-b}{a+b} =$ __

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

12. A rectangle of integral sides has sum of diagnoals equal to 20. Its perimeter may be _____

1) 81 2) 42 3) 28 4) 36

13. Missing term in the sequence 103, 107, 113, 121, 131,.....157, 173 is of the digital form abc then c + a - b = _____

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

14. Sum of all even positive integer divisors of 100 is E and that of odd divisiors is D then E - D =

1) 210 2) 217 3) 155 4) 188

15. An operation $\oplus$ is defined by $a \oplus b = (1-a)(1-b)$. If $(a \oplus 2a) \oplus (3a \oplus a)=0$; $(a>0)$ has roots α and β, then $\alpha \cdot \beta =$ ____

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

16. The number of circles that can be drawn touching all the three sides of a trianlge in any way is _____

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

17. If $(x+y)^2 = 1+2xy,\ x,y \in R$ then $x^2(3-4x^2)^2 + y^2(4-3y^2)^2 =$ ___

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

18. $3600 = 3^x 5^z 2^y$ where $x,y,z \in N$ then $3x+5z+2y =$

1) 24 2) 45 3) 28 4) 26

19. One end of diameter of a circle is (3,4) and the centre of circle is (a, a+1). If the area of circle is 32π sq.u. Then sum of all possible values of a is

1) 16 2) 4 3) 6 4) 0

20 Number of positive integer pairs (x,y) satisfying $3x+4y=11$ is _____

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

21. If $xy=2^6$, $yz=6^4$, $zx=4^3$ *then* $9x=$ _____

1) 4^2 2) 8^3 3) 3^4 4) 3^6

22. In Δ ABC, $\angle B=90^0$, $BC=24cm$ and area is 120sq.cm then perimeter is ..... cm

1) 80 2) 100 3) 144 4) 60

23. An equilateral triangle has height $4\sqrt{3}$ units. The area of triangle formed by joining mid points of its sides is _____ sq.u

1) $4\sqrt{6}$ 2) $\sqrt{48}$ 3) $3\sqrt{2}$ 4) $\sqrt{128}$

24. Number of natural numbers that are divisible by either 5 or 7 in first 200 natural numbers is

1) 63 2) 48 3) 40 4) 68

25. $(x - a)(x + 8) + 1=0$, x and a are integers then a =

1) -10 or -6 2) 10 or 6 3) 10 or -6 4) -10 or 6

26. Product of four consecutive natural numbers is denoted by P. Then P+1 is always _____

1) Perfect cube 2) Perfect Square
3) Perfect number 4) Perfect 4^{th} power

27. Which is false statement among the following?

1) Every perfect number is of the form 3n+5; $n \in N$
2) Every prime number >2 is an odd number
3) $x^{2n}-y^{2n}$ is always divisible by x^2-y^2 for $n \in N$
4) $x^{2n+1}+y^{2n+1}$ is always divisible by $x+y$ for all $n \in N$

28. Maximum number of points in which 2 circles and 2 stright lines can meet in any way is _____

1) 11 2) 10 3) 8 4) 4

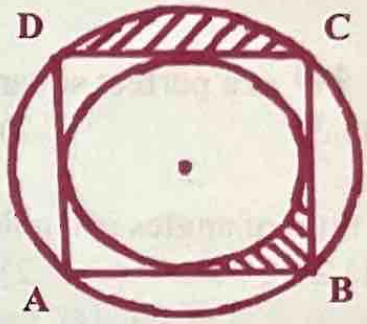
29. Two sides of a scalane triangle are 3 and 5. Then the number of possible triangles with integral sides is

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

30. $1+2^{-1}+2^{-2}+2^{-3}+2^{-4}+$____ can never exceed x, $x \in N$. Then $\frac{(x+1)(x+3)}{(x+2)} =$ __

1) 3.75 2) 6.25 3) 4.25 4) 6

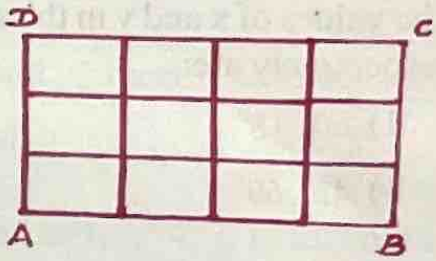
31. ABCD is a square of side 2 units. The area of shaded region is ____



1) $\pi-2$ 2) $2\pi-1$

3) $\frac{\pi}{4}$ 4) $\frac{\pi+2}{4}$

32. ABCD is a rectangle divided into all unit squares as shown. Number of distinct 2 x 2 size squares identified in this diagram



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

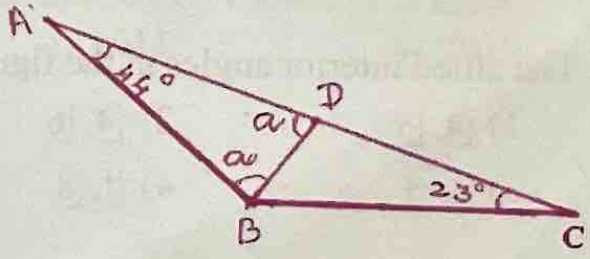
33. a : b : c : d = 3 : 2 : 4 : 1 and if $\sqrt{\frac{a^2+b^2+c^2+d^2}{2a^2+3b^2+c^2+4d^2}} = x$ then $5x^2-2=$_____

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

34. Number of 2 digit numbers that increase by 75% when their digits are interchanged is

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

35. In this figure AB = AD, $\angle DCB = 23^0$ $\angle BAD = 44^0$, *then* $\angle DBC =$ ___



1) 45^0 2) 27^0
3) 54^0 4) 36^0

36. The smallest multiple of 9 of the following which contains no odd digit is____
1) 288 2) 144 3) 72 4) 2880

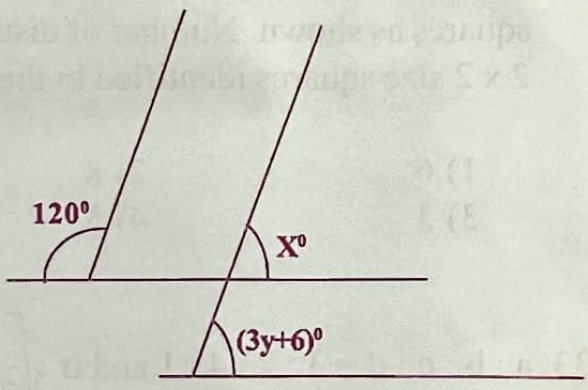
37. 2014^{th} term in the sequence of 1, 1, 1, 2, 1, 3, 1, 4, 1, 5 .....
1) 2015 2) 1007 3) 1 4) 1012

38. ABCD is a rectangle, E is the mid point of AD. F is the mid point of EC. Area of rectangle ABCD is $120cm^2$. Area of $\Delta BDF =$_____ cm^2
1) 10 2) 15 3) 40 4) 30

39. $n^2 - 440$ is a perfect square for x choices of n then $x =$_____
1) 3 2) 4 3) 5 4) 0

40. The ratio of angles in a golden triangle :
1) 2 : 2 : 1 2) 1 : 2 : 3 3) 1 : 1 : 2 4) 1 : 1 : 3

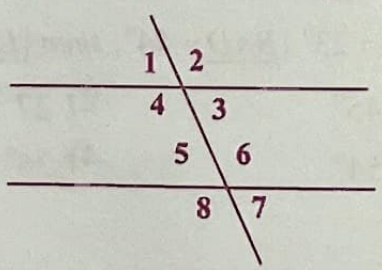
41. The values of x and y in the adjecent figure respectively are:
1) $60^0, 18^0$ 2) $18^0, 60^0$
3) $48^0, 60^0$ 4) $60^0, 48^0$



42. The length of the longest rod that can be put in a room, whose l = 10m and b = 10 m is 15m. Then the possible height of the room is ____m
1) 5 2) 12 3) 10 4) 25

43. P + Q : Q is the brother of P; P - Q : P is the mother of Q; $P \div Q : Q$ is the wife of P, P x Q : Q is the daughter of P. Which of the following is correct to show M is the niece of L
1) L + P x M 2) P + L x M 3) L - P x M 4) L x P - M

44. The allied interior angles in the figure
1) $\angle 4, \angle 5$ 2) $\angle 4, \angle 6$
3) $\angle 1, \angle 5$ 4) $\angle 1, \angle 8$



45. In a cylinder, if radius is halved and height is doubled, then volume will be
1) Halved 2) Four times 3) Same 4) Double

46. The auto rikshwa fair in a city is charged Rs.8/- for first kilometer and Rs4/- per kilometer for subsequent distance. If distance is x km and charged Rs.y then the linear equation representing the ralation is

1) $y = 4x + 8$ 2) $y = 4x-8$ 3) $y = 4x + 4$ 4) $y = 8x - 4$

47. Mean of some observation is 25. If all the scores are multiplied by 2 and added 3, the new mean is

1) 25 2) 53 3) 77 4) Can't find

48. The mean of 11, 18, P, 16, 15, 10 is 14. Then Median of the data :

1) 14 2) 14.5 3) 15 4) 15.5

49. Read the following data :

A) The mean of n observations is $\frac{\sum x_n}{n}$

B) The median of the ungrouped data is its mid value

1) A & B are true 2) A true, B false 3) A false, B true 4) A & B are false

50. In a parallelogram ABCD, the angle bisectors of $\angle B$ and $\angle C$ meet at '0'. Then $\angle BOC$ =

1) 180^0 2) 60^0 3) 90^0 4) 45^0

51. In a certain code language "1, 3, 4" means "good and tasty"; "4, 7, 8" means "see good pricture" and "7, 2, 9" means "Pictures are faint" then which numerical symbol stand for "see"

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

52. Ramanujan became

A) first Indian elected fellow of Trinity college

B) Second Indian elected fellow of the Royal Society

Then the true statement

1) A only 2) B only 3) A and B 4) Neither A nor B

53. The year that is declared as "Year of Mathematics" by Government of India

1) 2000 2) 2012 3) 2011 4) 2010

54. If $\frac{\sqrt{5}+\sqrt{3}}{2\sqrt{5}-3\sqrt{3}} = a - b\sqrt{15}, then\ \frac{a}{b}$

1) $-\frac{19}{5}$ 2) $-\frac{19}{7}$ 3) $-\frac{5}{7}$ 4) $\frac{19}{5}$

55. The word "Geometry" is derived from the Greek words
    1) Geo, Metra 2) Geo, Metrein
    3) Geo, Metran 4) Geon, Metri

56. The idea of " figures of same area which differs in their shapes" is widely observed in
    1) Euclid's The Elements 2) Pythogoreas concepts
    3) Egyptian Mathematics 4) Sulba sutras

57. (-x, y) is a point in the 4th quadrant, then (x,y) lies in
    1) Q_1 2) Q_2 3) Q_3 4) Q_4

58. Area of the quadrilatral formed by joining the points (-1, 0), (-1, 3), (1, 3) and (1, 0) in order .... (sq.units)
    1) 3 2) 6 3) 9 4) 12

59. In the congruence of triangles, this is not true
    1) SAS 2) ASA 3) AAA 4) SSS

60. What is the two digit number ?
    A) The sum of the two digits is 8. The ratio of the two digits is 1 : 3
    B) The product of two digits is 12. The quotient of two digits is 3
    To get the answer ,
    1) Statement A alone is sufficient
    2) Statement B alone is sufficient
    3) Either A or B alone are sufficient
    4) Both A and B together are not sufficient