JEXPO SOLVED PAPER 2014 MATHEMATICS

Jexpo 2014

1. The age of a father is 25 years more than his son age. The product of their ages is 84 in years. What will be son's age in years, after 10 years ? **Ans:13**

2. Find the sum 0.23+0.234+0.2345 corrected to three significant figures.**Ans:0.699**

3. The average age of 27 boys of a class is 16 years and if their teacher is included the avg is increased by ½ years. Find the age of the teacher.**Ans:30years**

4. Solve for t, 3t-8≤-t in the set of whole numbers.**Ans:0,1,2**

5. If the sum of roots of an equation, $x^2+px+1=0$ (p>0) is twice the difference between them then p=? **Ans:$\frac{4}{\sqrt{3}}$**

6. If a regular hexagon is inscribed in a circle of radius 4 cm, then find the area of the polygon in cm^2. **Ans: $24\sqrt{3}$**

7. If tanA=1/2 and tan B= 1/3 then A+B=? **Ans:$\frac{\pi^c}{4}$**

8. The difference between SI and CI on a sum of Rs 20,000 for 2 years is Rs 112.50. What is the annual rate of interest.**Ans:7.5%**

9. A sum of money doubles itself in 3 years. how many times itself will the sum become in a period of 9 years at SI? **Ans:4**

10. If X^0 is the measure of an angle which is equal to its complement and y^0 is the measure of an angle which is equal to its supplement then X^0/y^0 is......... **Ans:0.5**

11. There are three amounts a, b and c such that b is the SI on c and c is the SI on a. Which of the following must always be true? **Ans:$C^2=ab$**

12. A sold an article to B at 10% profit. B sold it to C at 20% profit. Find the price at which A bought if B's profit is Rs 44 (in Rs). **Ans:200**

13. A Sum of money invested at CI doubles itself in 6 years. In how many years will it become 64 times itself at the same rate of CI? **Ans:36**

14. Anand completed 1/5th of a piece of work in 4 days. He was then assisted by Bhargav and they completed the remaining work in 8 days. Bhargav can complete the work in ....days. **Ans:20**

15. The numerator of a fraction is 1 less than the denominator, the fraction becomes 2/3. Find the fraction. **Ans:6/7**

16. Gold and copper are heavier than water by 19 and 9 times respectively. In what proportion should gold and Copper be mixed to form an alloy so that it will be heavier than water by 12 times. **Ans:3:7**

17. In a triangle which is not equilateral, the sides (in cm) are integers. The longest side is 3 cm. The perimeter of the triangle is........... **Ans:7cm**

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18. A sum of money at SI amounts to Rs 800 in 2 years and to RS 1,200 in 6 years . The sum is........ **Ans:Rs600**

19. In a 100m race, Aloke gives Bala a start of 10m and beats him by 10m or 2 seconds. Find Aloke's speed in m/sec. **Ans:$6\frac{2}{3}$**

20. Two complementary angles are in the ratio 2:3. Find the larger angle among them. **Ans:54^0**

21. A boy is late to his school by 20minutes, if he travels at a speed of 4 Kmph . If he increases his speed to 6 Kamph, he is still late by 10 minutes. At what speed should he travels to reach the school on time? **Ans:12kmph**

22. In a two digit no. the unit degits is 3 more than the tens digit. The sum of the digits is 18 less than the original no. Find the product of the digits. **Ans:10**

23. If α and β are the roots of the equation $2x^2-5x+2=0$ then $(α-1)^{β-1}=$_____, where α>β. **Ans:1**

24. Two taps A and B can fill tank in 10 minutes and 15 minutes respectively . In how many minutes will the tank be full if B was opened three minutes after A was opened? **Ans:7.2**

25. If one of the roots of the equation, $x2-2x+C=0$ is thrice the other, then C= _ **Ans:3/4**

26. When a person travelled at 25% faster than his usual speed , he reached his destination 48 minutes early. By how many times would he be late if he travelled at 20% less than his usual speed? **Ans:60**

27. X and Y can do a piece of work in 4 and 6 days . If Y works on the first day and they work on alternate days , in how many days will twice the amount of work be completed? **Ans:**

28. .A boat can travel at a speed of 8 KMPH upstream and 10 KMPH downstream. If it travels a distance of 40 KM upstream and 50 Km downstream, then the avg speed of the entire journey is__ Kmph . **Ans:9**

29. The mean proportion of a and b is 10 and the value of a is four times the value of b. Find the value of $a+b$ ($a>0$ and $b>0$). **Ans:25**

30. A teacher wanted to distribute 2025 chocolates equally among X no. of students . If each student gets X chocolates, find the value of X. **Ans:45**

31. A is an obtuse angle . The measure of angle A and twice its supplementary differ by 30^0. Then angle A can be _. **Ans:110^0**

32. If seven times a number is added to $1/5^{th}$ of itself , then $5/6^{th}$ of the sum is equal to 30. Find the number. **Ans:5**

33. P varies inversely with $\sqrt{y}$. If $y=2$ then $P=40$, if $P=20$ then find the value of y. **Ans:8**

34. 55% of 1000 ÷ 60% of 2000=? **Ans:11/24**

35. Find the are of a right isosceles triangle whose hypotenuse is $16\sqrt{2}$ cm. **Ans:128cm²**

36. A sum was borrowed at SI at R% p.a. for 2 years . If it had been borrowed at (R+5)% p.a. , total interest would have become Rs. 200 more. Find the sum (in Rs). **Ans:2000**

37. A varies directly with B when C is constant and inversely with C when B is constant . A-6 when B-2 and C-3. What is the value of A when B-3 and C-18? **Ans:3/2**

38. A number is increased by 8% and also decreased by 3%. If the difference of the two numbers thus obtained be 407, find the original number.(**Ans:wrong question)**

39. If the diameter of a circle is equal to the diagonal of a square . Then the ratio of their areas is___? **Ans:11:7**

40. The number of real roots of the quadratic equation $3x^2+4-0$ is____. **Ans:0**

41. Two trains are travelling in the same direction at 70 Kmph and 50 Kmph . The faster train passes a man sitting in the slower train in 36 seconds. What is the length of the faster train? **Ans:200m**

42. The population of a city increases by 20% at the end of every year . During which of the following years will the population get doubled? **Ans:3rd**

43. The cost of television is Rs15,625. Its value depreciates at the rate of 8 % p.a. Calculate the total depreciation at the end of 3 years. **Ans:3458**

44. The number of diagonals of a regular polygon is 27. Then each of interior angle of the polygon is____. **Ans:140^0**

45. P and Q are two cylinders having equal total surface areas . The radius of each cylinders is equal to the height of the other. The sum of the volumes of both the cylinders is 250π cm^3 . Find the sum of their curved surface areas. **Ans:100π**

46. In an office 60% of the employees are women . 30% of the women employees have children and 20% of the men employees have children .What % of the employees have children. **Ans:26%**

47. $\frac{18-2m}{5} + \frac{4m+3}{7} \geq \frac{m}{5} + \frac{8}{7}$ then, **Ans:m≤101**

48. The simplifies value of $\csc^2\alpha(1+1/\sec\alpha)(1-1/\sec\alpha)$ is. **Ans:1**

49. Find the number of soaps of size 2.1 cmX3.7cmX2.5cm that can be put in a cuboidal box of size 6.3cmX7.4cmX5cm. **Ans:12**

50. Four times the sum of the areas of the two circular faces of a cylinder is equal to the twice its curved surface area. Find the diameter of the cylinder of its height is 8 cm. **Ans:4**

51. If $\sqrt{2^n} = 1024$ $then$ $3^{2\left(\frac{n}{4}-4\right)} = $__ **Ans:9**

52. A parallelogram has two of its adjacent sides measuring 13cm each. Find the sum of the squares of its diagonals. **Ans:676**

53. 9 years ago A's age and B's age were in the ration 5:7 . which of the following can not be the ratio of their ages 5 years from now? **Ans:**

54. $(0.01024)^{1/5}$ -_. **Ans:0.4**

55. If A $-(x-a)(x-b)(x-c)....(x-z)$, then the no of terms in the expression of $(a+A)(b+A)(c+A)....(z+A)$ is_. **Ans:1**

56. If xyz -0 then find the value of $(a^x)^{zy}+(a^y)^{zx}+(a^z)^{xy}$ ... **Ans:3**

57. Ajay invests Rs m for 7 months and Rs n for the remaining part of year. Sohail invested Rs. N for the remaining part of year. SOhail invested Rs n for the 9 months and Rs. m for the remaining part of the year. If at the end of the year , they share profits equally, then what is the relation between m and n? **Ans:m=n**

58. Which of the following is the greatest? **Ans:$(49)^{3/2}$**

59. If qr : pr : pq $-$ 1 : 4 : 7, then find $\frac{p}{qr} : \frac{q}{pr}$. **Ans:16:1**

60. An escalator has 50steps. Ajoy starts walking up on it at 3 steps/sec . If the escalator moves up at 2 steps/sec, find the time (in seconds) he would take to reach its top. **Ans:10sec**

61. If $2^{2x-2}-(8)^{y-1}-16^{x-25}$ then find the sum of x an y. **Ans⊗wrong question)**

62. The value of $[(23+2^2)^{2/3}+(140-29)^{1/2}]^2$ is. **Ans⊗wrong question)**

63. If sin A $-1/2$ and $90°<A<180°$, then the value of A in circular measure is. **Ans:$\frac{5\pi}{6}$**

64. The adjacent angles of a rhombus are 2x-35° and x+5°, find x. **Ans:70^0**

65. The length and breadth of a rectangular field are 4 m and 3 m respectively . The field is divided into two parts by fencing it diagonally, Find the cost of fencing at Rs. 10 per meter. **Ans:Rs40**

66. What must be added to each of the numbers 3, 7, 8 and 16 so that the resulting numbers are in proportion ? **Ans:2**

67. ABCD is rhombus in which angle B $-120°$ and BD-5 cm . find the perimeter of the rhombus ABCD. **Ans:20**

68. The square root of $X^{m^2-n^2}.X^{n^2+2mn}.X^{n^2}$ is_. **Ans:X^{m+n}**

69. A sum of Rs. 1,500 amounts to Rs. 1,680 in 3 years at SI . If the interest rate is increased by 2%, it would amount to__. **Ans:1770**

70. If $A = sin\theta + cos\theta$ and $B = sin\theta - cos\theta$ then which of the following is true? **Ans:$A^2+B^2=2$**

71. The length of an arc , which subtends an angle of 30^0 at the centre of the circle of radius 42cm is_. **Ans:22cm**

72. A dishonest shopkeeper sells the items at cost price but for every kg he gives 200gm less, His profit % is__. **Ans:25%**

73. If x, y and z are in continues proportion , then $(x+y+z)(x-y+z)$ -_____. **Ans:$x^2+y^2+z^2$**

74. Two boys sat for an examination. One of them got 9 marks more than the other and his marks were 56% of the sum of their

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marks. Find the marks scored by each....... **Ans:42,33**

75. A shopkeeper marks the price of an article 50% above the cost price and declares a discount of 20%. If profit obtained is Rs 30, then find the marked price. **Ans:Rs150**

76. If 100cm is divided into two parts such that the sum of 2 times the smaller part and the 1/3 of the larger part , is less than 100 cm, then which of the following is correct.? **Ans:larger portion is always greater than 60.**

77. If A and B are complementary angles, then the value of $\frac{\sin^2 A + \sin^2 B}{\cos ec^2 A - \tan^2 B}$ is__. **Ans:1**

78. The ratio of the present ages of Anand and Bala is 8:3 . When Anand was 30 years old , Bala was 5 years old,. Find the present age of Bala(in years). **Ans:15**

79. If $2^a - 4^b - 8^c - 64$, then which of the following relation is correct? **Ans:a+b+c=11**

80. The volume of classroom are 15ft x 10ft x 11ft . The area of 4 walls is_____. **Ans:550ft²**

81. Rattan spends 70% of his income . His income increases by 25% and also his expenditure increases by 25%. Find the % increases in his savings. **Ans:no change**

82. The angle subtended by a minor arc of a circle in its alternate segment is____. **Ans:acute**

83. If $X^Y - Y^x$ where X and Y are distinct natural no. then find X+Y . **Ans:6**

84. If 3x -1 is a factor of the polynomial $81x^3 - 45x^2 + 3a - 6$,then a -? **Ans:8/3**

85. A car covers a distance of 420 km at a constant speed . If its speed is 10km /h less , it would have taken 1 hour more to travel the same distance. Find the speed of the car. **Ans:70kmph**

86. The profit made in selling 5 m of a cloth equals the cost price of 2m of that cloth . Find the % profit. **Ans:**

87. The ration between exterior angle and interior angle of a regular polygon is 1:3 then find the no . of side of polygon. **Ans:8**

88. If each of algebraic expression $lx^2 + mx + n$, $mx^2 + nx + l$ and $nx^2 + lx + m$ are perfect squares , the l+m/n -? **Ans:-4**

89. If $\sin^2 \alpha + \sin \alpha = 1$ then the value of $\cos^4 \alpha + \cos^2 \alpha$ is __. **Ans:1**

90. If $\{3^{5x} + (81)^2 x 6561 \}/3^{2x} - 3^7$ then x-? **Ans⊗worng question**

91. The ratio of 10th digit and units digit of a two digit no. is 2:3 . How many possible no . are there.? **Ans:4**

92. The mean proportion of two no is 24 and their 3rd proportion is 72. Find the sum of 2 numbers. **Ans:80**

93. If a no x is increased by 20% and then reduced by 20 , it results in 160 . Instead if the no x is reduced by 20% and increased by 20, then what will Be the result. **Ans:140**

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94. $2[(16-15)^{-1} +(13-8)^{-2}]^{-1}+(1024)^{0} =$? **Ans:38/13**

95. If p , q , r the length of sides of right triangle PQR and the hypotenuse $r = \sqrt{2pq}$, then angle QPR =? **Ans:45⁰**

96. $\sin^4 \theta - \cos^4 \theta =$? **Ans:$2sin^2\theta - 1$**

97. $X^4+1=1297$ and $Y^4-1=2400$, then $X^2- Y^2=$? **Ans:13**

98. If $X2-ax-6=0$ and $X2+ax-2 =0$ have one common root , then a can be ? **Ans:-1**

99. The no. of edges in a pyramid whose base has 20 edges is_____. **Ans:40**

100. The total cost of 10 erasers and 5 sharpners is at least Rs. 65. The cost of eraser can not exceed Rs . 4 .Find minimum possible cost of each sharpners. **Ans:5**

The above Question is solved from myself . If any answers is wrong please make comment at the boxes….. and send your valuable suggestion. Thank you ……
((For your kind information The Answers are verified by experienced Teacher))