MATHS

BOOKS - HIMALAYA MATHS (KANNADA ENGLISH)

PROGRESSIONS

Question Bank

1. In a geometric progression consisting of positive terms, each term equals the sum of the next two terms. Then the common ratio of this progression equals :

A. $\sin 18^\circ$

B. $2\cos 18^\circ$

C. $2\cos 18^\circ$

D. $2\sin 18^\circ$

Answer: D

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2. If x, y, z are positive integers then value of expression $(x+y)(y+z)(z+x)$ is

A. $= 8xyz$

B. > 8 x y z

C. $\leq 8xyz$

D. $= 4xyz$

Answer: B

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3. In an A.P. the pth term is q and the $(p+q)$ th term is 0. Then the qth term is :

A. $-p$

B. p

C. $p+q$

D. $p-q$

Answer: B

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4. The 10th common term between the series :

$3 + 7 + 11 + \ldots\ldots$ and $1 + 6 + 11 + \ldots\ldots\ldots\ldots\ldots 1$ is

:

A. 191

B. 193

C. 211

D. none of these

Answer: A

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5. Let S be the sum, P be the product and R be the sum of the reciprocals of 3 terms of G.P. Then $P^2R^3 : S^3$ is equal to :

A. 1: 1

B. (common ratio)" : 1

C. (first term) ^ (2) : (common ratio) ^ (2)

D. none of these

Answer: A

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6. The minimum value of the expression $3x + 3^{1-x}$, $x \in R$, is :

A. 0

B. $\frac{1}{3}$

C. 3

D. $2\sqrt{3}$

Answer: D

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7. In a G.P. of even number of terms, the sum of all terms in 5 times the sum of the odd terms. The common ratio

of the G.P. is :

A. $-\frac{4}{5}$

B. $\frac{1}{5}$

C. 4

D. none of these

Answer: C

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8. The length of three unequal edges of a rectangular solid block are in G.P. The volume of the block is $216cm^3$ and total surface area is $252cm^2$. The length of the longest edge is :

A. $12cm$

B. $6cm$

C. $6cm$

D. $3cm$

Answer: A

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9. The minimum value of $4^x + 4^{1-x}$, $x \in R$ is :

A. 2

B. 4

C. 1

D. 0

Answer: B

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10. Let S_n denote the sum of the first n terms of an A.P. If $S_{2n} = 3S_n$, then $S_{3n} : S_n$ is equal to :

A. 4

B. 6

C. 8

D. 10

Answer: B

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11. If in an A.P. $S_n = qn^2$ and $S_m = qm^2$, where S_r denotes the sum of r terms of the A.P. , then S_q equals :

A. $\frac{q^3}{2}$

B. mnq

C. q^3

D. $(m+n)q^2$

Answer: C

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12. If x,2y, 3z are in A.P. where the distinct numbers x,y,z are in G.P., then the common ratio of the G.P. is :

A. 3

B. $\frac{1}{3}$

C. 2

D. $\frac{1}{2}$

Answer: B

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13. If 9 times the 9th term of an A.P. is equal to 13 times the 13^{th} term, then 22nd term of the A.P. is :

A. 0

B. 22

C. 220

D. 198

Answer: A

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14. The third of G.P. is 4. The product of its first 5 terms is

:

A. 4^3

B. 4^4

C. 4^5

D. none of these

Answer: C

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15. If the sum of n terms of an A.P. is given by :

$S_n = 3n + 2n^2$, then the common difference of the A.P. IS :

A. 3

B. 2

C. 6

D. 4

Answer: D

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16. If t_n denotes the nth term of the series :

$2 + 3 + 6 + 11 + 18 + \ldots\ldots\ldots$, then t_{50} is :

A. $49^2 - 1$

B. 49^2

C. $50^2 + 1$

D. $49^2 + 2$

Answer: D

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17. The A.M and G.M of two numbers are in the ratio $3:2$, then the ratio of the numbers is

A. $\left(7-3\sqrt{5}\right):2$

B. $\left(7+3\sqrt{5}\right):2$

C. $2:\left(7-3\sqrt{5}\right)$

D. $2:\left(7+3\sqrt{5}\right)$

Answer: B

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18. If 12 and 9 are respectively A.M and G.M of two numbers, then the numbers are the roots of the equation

A. $x^2 - 24x + 81 = 0$

B. $x^2 + 24x - 81 = 0$

C. $x^2 - 81x + 24 = 0$

D. $x^2 - 24x - 8I = 0$

Answer: A

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19. If one geometric mean G and two arithmetic means A_1 and A_2 are inserted between two given quantities then, $(2A_1 - A_2)(2A_2 - A_1) =$

A. $2G$

B. G

C. G^2

D. G^3

Answer: C

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20. $If(1)/(2)$ $isthe\sum\ \rightarrow\ \in f \in ityofaG.\ P, withcommonratio$ (1)/(3),` then the first element is

A. $\frac{1}{2}$

B. $\frac{2}{3}$

C. $\frac{1}{3}$

D. $\frac{3}{4}$

Answer: C

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21. If S is the sum to infinity of a G.P, whose first element is a, then the sum of the first n elements is

A. 1. $S\left(1-\frac{a}{S}\right)^n$

B. 2. $S\left(1-\left(1-\frac{a}{S}\right)^n\right)$

C. 3. $a\left(1-\left(1-\frac{a}{S}\right)^n\right)$

D. 4. None of these

Answer: B

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22. If 2 is the sum to infinity of a G.P, whose first element is $1,$ then the sum of the first n terms is

A. 1 $\frac{2^n - 1}{2^n}$

B. 2) $\frac{2^n - 1}{2^{n-1}}$

C. 3) $\frac{2^{n-1} - 2}{2}$

D. 4) $\frac{2^{n-1} - 1}{2^n}$

Answer: B

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23. The fourth seventh and tenth terms of a G.P. are p,q,r respectively, then :

A. $p^2 = q^2 + r^2$

B. $q^2 = pr$

C. $p^2 = qr$

D. $pqr + pq + 1 = 0$

Answer: B

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24. The second, third and sixth terms of an A.P are consecutive elements of a G.P. The common ratio of the G.P is

A. 1)1

B. 2)-1

C. 3)3

D. 4)-3

Answer: C

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25. If $x, 2x+2, 3x+3$ are in G.P, then 5^{th} element is

A. 1) $\frac{9}{2}$

B. 2)-$\frac{81}{4}$

C. 3) $\frac{3}{2}$

D. 4)3

Answer: B

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26. Three positive numbers froman increasing G.P. If middle term in this G.P. is doubled, the new numbers are in A.P. Then the common ratio of the G.P. is :

A. $2-\sqrt{3}$

B. $2+\sqrt{3}$

C. $\sqrt{3}-2$

D. $\sqrt{3}+2$

Answer: B

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27. Let (a_n) be a G.P. such that $\frac{a_4}{a_6} = \frac{1}{4}$ and $a_2 + a_5 = 216$. Then $a_1 =$

A. 7 or $\frac{54}{7}$

B. 10

C. 8 or $\frac{108}{7}$

D. 12 or $(108)(7)$

Answer: D

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28. The fourth element of a G.P is 8. The product of first seven elements is

A. 8^6

B. 8^7

C. 8^5

D. 8^4

Answer: B

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29. If $a_1, a_2, a_3 \ldots$. is an A.P. such that :

$a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 225,$ then

$a_1 + a_2 + a_3 + \ldots . a_{23} + a_{24}$ is :

A. 909

B. 75

C. 750

D. 900

Answer: D

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30. 7th term of an A.P. is 40. then the sum of the first 13 terms is

A. 520

B. 53

C. 2080

D. 1040

Answer: A

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31. In an A.P, 7^{th} element is $\frac{1}{21}$ and 21^{st} element is $\frac{1}{7}$. Then 147^{th} element is

A. 32

B. 64

C. 48

D. 96

Answer: A

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32. If a, b, c are in $A.P$, then $(a-c)^2 =$

A. $b^2 - ac$

B. $2\left(b^2 - ac\right)$

C. $3\left(b^2 - ac\right)$

D. $4\left(b^2 - ac\right)$

Answer: D

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33. Let a and d are respectively first and the common difference of an A.P. The 5^{th} element is $\frac{1}{9}$ and the 9^{th} element is $\frac{1}{5}$. Then,

A. $a = \frac{1}{d}$

B. $a = d$

C. $a + d = 0$

D. $\frac{a}{d} = \frac{1}{2}$

Answer: B

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34. Let a and d are respectively first and the common difference of an A.P. The 5^{th} element is $\frac{1}{9}$ and the 9^{th} element is $\frac{1}{5}$. Then,

A. $a = \frac{9}{5}$

B. $d = \frac{5}{9}$

C. $a = \frac{1}{45}$

D. 45

Answer: C

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35. In an A.P, 7^{th} element is $\frac{1}{21}$ and 21^{st} element is $\frac{1}{7}$. Then 147^{th} element is

A. a.1

B. b.2

C. c.21

D. d.147

Answer: A

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36. The first and last element of an A.P are 7 and 55 respectively. The sum of 10^{th} element from the beginning

and 10^{th} element from the end is

A. 115

B. 25

C. 69

D. 62

Answer: D

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37. If 5 times of the 5^{th} element of an A.P is equal to 9 times the 9^{th} element, then 14^{th} element of the $A.P$ is

A. 0

B. $2\left(14^{th}.\text{ element}\right)$

C. $2\left(4^{th}.\text{ element}\right)$

D. 15^{th} element

Answer: A

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38. Sum of 25^{th} and 5^{th} elements of an A.P is

A. $2\left(15^{th}.\text{ element}\right)$

B. $2\left(5^{th}.\text{ element}\right)$

C. 20^{th} element

D. 30^{th} element

Answer: A

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39. If the sum of 4^{th} and 8^{th} elements of A.P is 24 and the sum of 6^{th} and 10^{th} elements of 34 , then the common difference is

A. $\frac{3}{2}$

B. 2

C. $\frac{5}{2}$

D. 3

Answer: C

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40. The 12^{th} element from the end of A.P,$3, 8, 13, \ldots, 253$ is

A. 190

B. 194

C. 198

D. 200

Answer: C

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41. The 8^{th} element and 20^{th} element of an A.P are 22 and 46 respectively. The 18^{th} element is

A. a.41

B. b.42

C. c.43

D. d.44

Answer: B

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42. Which of the element of A.P 4, $5\frac{1}{3}, 6\frac{2}{3}, \ldots$` is 104

A. a.75

B. b.76

C. c.77

D. d.78

Answer: B

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43. If the ratio of the sums of the n elements of two arithmetic progressions is $5n+4:9n+16,$ then the ratio of their 18^{th} elements.

A. a. $\frac{180}{332}$

B. b. $\frac{178}{330}$

C. c. $\frac{179}{331}$

D. d. $\frac{181}{333}$

Answer: C

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44. a, b, c are in $A.P, x$ is $G.M$ between a and b, y is the G.M between b and $c,$ then b^2 is

A. a.the G.M between x^2 and y^2

B. b.the A.M between x^2 and y^2

C. c.the G.M between x and y

D. d.the A.M between x and y

Answer: B

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45. If $(a-1)$ is the G.M between $(a-2)$ and $(a+1)$ then a=

A. a.2

B. b.3

C. c.4

D. d.1

Answer: B

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46. If a, b, c are in geometric progression then $\log a^n, \log b^n, \log c^n$ are

A. a.A.P

B. b.G.P

C. c.H.P

D. d.none of these

Answer: A

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47. The first term of a G.P is 3 and 6^{th} element is $\frac{3}{32}$, then if P is the product of 6 elements, then $P^2 =$

A. a. $\left(\frac{3}{16}\right)^6$

B. b. $\left(\frac{32}{9}\right)^6$

C. c. $\left(\frac{16}{3}\right)^6$

D. d. $\left(\frac{9}{32}\right)^6$

Answer: D

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48. The first and the n^{th} elements of a G.P are respectively a and b and P is the product of n elements,

then $P^2 =$

A. a.ab

B. b.$(ab)^{n-1}$

C. c.$(ab)^n$

D. d.$(ab)^{-n}$

Answer: C

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49. a, b, c are in A.P, b, c, d are in G.P and c, d, e are in H.P, then a, c, e are in

A. a.A.P

B. b.$G.\ P$

C. c.$H.\ P$

D. d.none of these

Answer: B

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50. For what values of x, the numbers $-\frac{2}{7}, x, -\frac{7}{2}$ are in G.P ?

A. 1

B. ± 1

C. 2

D. ± 2

Answer: B

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51. The value of n for which $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ is the A.M. between a and b is :

A. 1

B. 2

C. 3

D. 4

Answer: A

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52. If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is an G.M between a and b then the value of n is

A. a.0

B. b.1

C. c.$\frac{1}{2}$

D. d.none of these

Answer: C

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53. If the sum of first p terms of an A.P is equal to the sum of the first q terms , then find the first (p+q) terms .

A. 0

B. 1

C. 2

D. 3

Answer: A

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54. Find the sum to n terms of the A.P., whose k^{th} term is 5k + 1.

A. 401

B. 402

C. 404

D. 403

Answer: B

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55. If the sum of n terms of an A . P is $3n^2 + 5n$ and its m^{th} term is 164 , find the value of m.

A. 9

B. 27

C. 81

D. 36

Answer: B

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56. The 12^{th} common terms between the series $3+7+11+..$ And $1+6+11+\ldots+$ is

A. a.220

B. b.231

C. c.232

D. d.233

Answer: B

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57. Find the sum of all two digit numbers which when divided by 4, yields 1 as remainder.

A. 1012

B. 1201

C. 1212

D. 1210

Answer: D

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58. The number of common elements to the two sequences $17, 21, 25, \ldots\ldots 417$ are $16, 21, 26, \ldots\ldots, 466$ is

A. a,21

B. b.19

C. c.20

D. d.91

Answer: C

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59. The sum of first 10 terms of the series :

$$\left(x+\frac{1}{x}\right)^2+\left(x^2+\frac{1}{x^2}\right)^2+\left(x^3+\frac{1}{x^3}\right)^2+\ldots\ldots \text{ is :}$$

A. $\left(\frac{x^{20}-1}{x^2-1}\right)\left(\frac{x^{22}+1}{x^{20}}\right)+20$

B. $\left(\frac{x^{18}-1}{x^2-1}\right)\left(\frac{x^{11}+1}{x^9}\right)+20$

C. $\left(\frac{x^{18}-1}{x^2-1}\right)\left(\frac{x^{11}-1}{x^9}\right)+20$

D. $\left(\frac{x^{20}-1}{x^2-1}\right)\left(\frac{x^{22}-1}{x^{20}}\right)$

Answer: A

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60. The sum of the serieslebrge

$(1+2)+\left(1+2+2^2\right)+\left(1+2+2^2+2^3\right)+..$ to n

term is

A. $2^{n+2} - n - 4$

B. $2(2^n - 1) - n$

C. $2^{n+1} - n$

D. $2^{n+1} - 1$

Answer: A

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61. If x, y, z are in A.P. and $\tan^{-1} x, \tan^{-1} y$ and $\tan^{-1} z$ are also in A.P. then :

A. $x = y = z$

B. $xy = yz$

C. $x^2 = yz$

D. $z^2 = xy$

Answer: A

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62. If a, b, c respectively the p^{th}, q^{th} and r^{th} elements of a G.P, thenlebrge $\Delta = \begin{bmatrix} \log a & \log b & \log c \\ p & q & r \\ 1 & 1 & 1 \end{bmatrix}$ equals

A. 1

B. 0

C. -1

D. none of these

Answer: B

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63. If f(x) is a polynomial function of second degree. IF f(1) = f(-1) and a,b,c are in A.P., then f'(a), f'(b), f'(c) are in :

A. A.P

B. G.P

C. $H.P$

D. A.G progression

Answer: A

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64. Let T_r be the rth term of an A.P. whose first term is a and common difference is d. If for some positive integers, $m, n, m \neq n, T_n = \frac{1}{n}$ and $T_n = \frac{1}{m}$, then a -d equals :

A. $\frac{1}{m} + \frac{1}{n}$

B. 1

C. (1)/(m n)`

D. 0

Answer: D

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65. Let a, b, c be in A.P and $|a| \leq 1, |b| \leq 1, |c| \leq 1$. If

$x = 1 + a + a^2 + \ldots. \to \infty$

$y = 1 + b + b^2 + \ldots. \to \infty$ z=1+c+c^(2)+.... tends to infinity ` then x,y,z are in

A. A.P

B. $G.P$

C. $H.P$

D. none of these

Answer: C

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66. If $a_1, a_2, \ldots\ldots\ldots\ldots\ldots a_n$ are in H.P., then the expression $a_1a_2 + a_2a_3 + \ldots\ldots\ldots + a_{n-1}a_n$ is equal to :

A. $n(a_1 - a_n)$

B. $(n-1)(a_1 - a_n)$

C. na_1a_n

D. $(n-1)a_1a_n$

Answer: D

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67. Let $a_1, a_2, a_3, \ldots\ldots\ldots\ldots\ldots$ be terms of an A.P. If $\frac{a_1 + a_2 + \ldots\ldots\ldots + a_p}{a_1 + a_2 + \ldots\ldots + a_q} = \frac{p^2}{q^2}, p \neq q$, then $\frac{a_6}{a_{21}}$ equals :

A. $\frac{41}{11}$

B. $\frac{7}{2}$

C. $\frac{2}{7}$

D. $\frac{11}{41}$

Answer: D

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68. The value of $2^{1/4}.4^{1/8}.8^{1/16}.....$ to ∞ is :

A. 1

B. 2

C. $\frac{3}{2}$

D. $\frac{5}{2}$

Answer: B

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69. In a geometric progression consisting of positive terms, each term equals the sum of the next two terms. Then the common ratio of this progression equals :

A. $\frac{\sqrt{5}-1}{2}$

B. $\frac{\sqrt{5}+1}{2}$

C. $-\left(\frac{\sqrt{5}+1}{2}\right)$

D. $\frac{1-\sqrt{5}}{2}$

Answer: A

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70. The first two terms of a geometric progression add upto 12. The sum of the third and the fourth term is 48.If the terms of the geometric progression are alternatively positive and negative, then the first term is :

A. 12

B. 4

C. -4

D. -12

Answer: D

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71. Let two numbers have arithmetic mean 9 and geometric mean 4. Then these numbers are the roots of the equation :

A. $x^2 - 8x - 16 = 0$

B. $x^2 - 18x + 16 = 0$

C. $x^2 + 18x - 16 = 0$

D. $x^2 + 18x + 16 = 0$

Answer: B

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72. A person is to count 4500 currency notes. Let a_n denote the number of notes he counts in the nth minute. If $a_1 = a_2 = \ldots\ldots\ldots = a_{10} = 150$ and $a_{10}, a_{11}, \ldots\ldots\ldots\ldots$ are in an A.P. with common difference -2, then the time taken by him to count at notes is :

A. 125 minutes

B. 135 minutes

C. 24 minutes

D. 34 minutes

Answer: D

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73. If f(x) is a function satisfying $f(x+y)=f(x)f(y)$ for all x,y $\in N$ such that $f(1)=3$ and $\sum_{x=1}^{n} f(x)=120$ Then the value of n is :

A. 4

B. 5

C. 6

D. none of these

Answer: A

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74. Let a^n be the nth term of the G.P. of positive numbers. Let $\sum_{n=1}^{100} a_{2n} = \alpha$ and $\sum_{n=1}^{100} a_{2n-1} = \beta$, such that $\alpha \neq \beta$ then the common ration is :

A. $\frac{\alpha}{\beta}$

B. $\frac{\beta}{\alpha}$

C. $\sqrt{\frac{\alpha}{\beta}}$

D. $\sqrt{\frac{\beta}{\alpha}}$

Answer: A

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75. Let $n(>1)$ be a positive integer, the largest integer m such that (n^m+1) divides :

$\left(1+n+n^2+\ldots\ldots\ldots n^{127}\right)$ is :

A. 8

B. 16

C. 32

D. 64

Answer: D

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76. If the fourth power of the common difference of an A.P with integer entries is added to the product of any four consecutive of it, then the resulting sum is

A. an even integer

B. an odd integer

C. the square of an integer

D. the cube of an integer

Answer: C

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77. Consider an infinite geometric series with first term a and common ratio r. If its sum is 4 and the second term is $\frac{3}{4}$, then :

A. a=(4)/(7), r=(3)/(7)`

B. $a = 2, r = \frac{3}{8}$

C. $a = \frac{3}{2}, r = \frac{1}{2}$

D. $a = 3, r = \frac{1}{4}$

Answer: D

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78. If the sum of the first 2n terms of the A.P. 2,5,8, ... is equal to the sum of the first n terms of the A.P. 57,59,61,. . . . . then n equals :

A. 10

B. 12

C. 11

D. 13

Answer: C

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79. An infinite G.P. has first term 'x' and sum '5' , then x belongs to :

A. $x \leq -10$

B. $-10 \leq x \leq 0$

C. $0 \leq x \leq 10$

D. $x \geq 0$

Answer: C

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80. If $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$ is an G.M between a and b then the value of n is

A. 0

B. 1

C. -1

D. none of these

Answer: B

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81. If the sum of first n terms of an A.P. is cn^2, then the sum of squares of these n terms is :

A. $\frac{n\left(4n^2-1\right)}{6}c^2$

B. $\frac{n\left(4n^2+1\right)}{3}c^2$

C. $\frac{n\left(4n^2-1\right)}{3}c^2$

D. $\frac{n\left(4n^2+1\right)}{6}c^2$

Answer: C

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82. If $\frac{a+b}{1-ab}, b, \frac{b+c}{1-bc}$ are in A.P, then $a, \frac{1}{b}, c$ are in

A. A.P

B. G.P

C. H.P

D. none of these

Answer: C

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83. If A_1, A_2 be two A.M's and G_1, G_2 be two G.M's between a and b, then $\frac{A_1 + A_2}{G_1 G_2}$ is equal to

A. 1) $\frac{a+b}{2ab}$

B. 2) $\frac{2ab}{a+b}$

C. 3) $\frac{a+b}{ab}$

D. 4) $\frac{a+b}{\sqrt{ab}}$

Answer: C

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84. The sum pf 'n' terms of two arithmentic progressions are in the ratio $(3n+8):(7n+15)$. Find the ratio of their 12^{th} terms .

A. $16:7$

B. $7:16$

C. $74:169$

D. none of these

Answer: B

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85. If $x = 1 + y + y^2 + \ldots$ to ∞, then y is

A. $x - 1$

B. $\dfrac{x}{1 - x}$

C. $\dfrac{x - 1}{x}$

D. $\dfrac{1 - x}{x}$

Answer: C

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86. If $A = 1 + r^a + r^{2a} + r^{3a} + \ldots$ to ∞ and lebrge $B = 1 + r^b + r^{2b} + \ldots\ldots\infty$ then $\dfrac{a}{b}$ is equal to

A. $\log_{(1-B)}(1-A)$

B. $\log_{\left(\frac{B-1}{B}\cdot\right)}\left(\frac{A-1}{A}\right)$

C. $\log_B A$

D. none of these

Answer: B

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87. The determinant :

$$\begin{vmatrix} a & b & a\alpha+b \\ b & c & b\alpha+c \\ a\alpha+b & b\alpha+c & 0 \end{vmatrix} = 0 \text{ if :}$$

A. a, b, c are in A.P

B. a, b, c are in $G. P$

C. a, b, c are in $H. P$

D. α is a-root of $ax^2 + bx + c = 0$

Answer: B

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88. If a,b,c are in G.P.L, then the equations $ax^2 + 2bx + c = 00$ and $dx^2 + 2ex + f = 0$ have a common root if $\frac{d}{a}, \frac{e}{b}, \frac{f}{c}$ are in :

A. A.P

B. G.P

C. H.P

D. none of these

Answer: A

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89. Every element of a G.P is positive and also every element is the sum of two preceding elements. The common ratio of the G.P is

A. 1) $\frac{1-\sqrt{5}}{2}$

B. 2) $\frac{\sqrt{5}+1}{2}$

C. 3) $\frac{\sqrt{5}-1}{2}$

D. 4)1

Answer: B

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90. If $x > 1, y > 1, z > 1$ are in G.P. , then $\frac{1}{1+\log x}, \frac{1}{1+\log y}$ and $\frac{1}{1+\log z}$ are in

A. A.P

B. $H.P$

C. G.P

D. none of these

Answer: B

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91. $a \geq 0$, then $\sum_{n=1}^{\infty} \left(\frac{a}{a+1} \right)^n$ equals

A. 1: $\frac{a+1}{2a+1}$

B. 2: $\frac{a}{2a+1}$

C. 3: $a+1$

D. 4: a

Answer: D

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92. If x, y, z are in A.P. and $\tan^{-1} x, \tan^{-1} y$ and $\tan^{-1} z$ are also in A.P. then :

A. $x = y = z$ or $y \neq 1$

B. $x = \frac{1}{z}$

C. $x = y = z$ but their common value is not necessarily zero

D. $x = y = z = 0$

Answer: C

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93. The sum of three numbers in A.P. is 27 and the sum of their squares is 293 . Find the numbers.

A. 10

B. 11

C. 12

D. none of these

Answer: B

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94. If a,b,c,d and p are distinct non -zero real numbers such that :

$(a^2+b^2+c^2)p^2-2(ab+bc+cd)p+(b^2+c^2+d^2)\leq 0$

, then a,b,c,d :

A. $A.P$

B. $G.P$

C. $H.P$

D. $ad=cd$

Answer: B

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95. If A.M of two numbers is twice their G.M, then the ratio of the greatest number to the smallest number is

A. 1)$7-4\sqrt{3}:1$

B. 2)$7+4\sqrt{3}:1$

C. 3)$21:1$

D. 4)$5:1$

Answer: B

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96. If $S_n = nP + \frac{n(n-1)}{2}$ Q where S_n denotes the sum of the first n terms of an A.P. , then the common difference is

A. $P+Q$

B. $2P + 3Q$

C. $2Q$

D. Q

Answer: D

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97. The first and last elements of an A.P are$a$ and l respectively. If S is the sum of all terms of the A.P, then the common difference is

A. 1) $\frac{l^2 - a^2}{2S - (l + a)}$

B. 2) $\frac{l^2 - a^2}{2S - (l - a)}$

C. 3) $\frac{l^2 + a^2}{2S + (l + a)}$

D. 4) $\frac{l^2 + a^2}{2S - (l + a)}$

Answer: A

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