**MCQ Single Answer**

**1)**  If and then is equal to

**[JEE Main 2023 (Online) 6th April Evening Shift]**

**A)** 220

**B)** 200

**C)** 240

**D)** 180

**MCQ Single Answer**

**2)** The sum of the first terms of the series is

**[JEE Main 2023 (Online) 6th April Morning Shift]**

**A)** 3420

**B)** 3450

**C)** 3250

**D)** 3520

**MCQ Single AnswerNumerical Question**

**3)** Let and , where and has least value. Then

**[JEE Main 2023 (Online) 8th April Morning Shift]**

**A)**  is divisible by 5

**B)**  is not divisible by

**C)**

**D)**  is divisible by

**4)** Let be three real numbers such that are in an arithmetic progression and are in a geometric progression. If , then is equal to \_\_\_\_\_\_\_\_\_\_

**[JEE Main 2023 (Online) 8th April Evening Shift]**

**MCQ Single AnswerNumerical Question**

**5)** Let be the term of the series and . Then is equal to

**[JEE Main 2023 (Online) 8th April Evening Shift]**

**A)** 11280

**B)** 11290

**C)** 11310

**D)** 11260

**6)** The sum of all those terms, of the arithmetic progression 3, 8, 13, ...., 373, which are not divisible by 3, is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 10th April Morning Shift]**

**MCQ Single AnswerNumerical Question**

**7)** Let the first term and the common ratio r of a geometric progression be positive integers. If the sum of squares of its first three terms is 33033, then the sum of these three terms is equal to

**[JEE Main 2023 (Online) 10th April Morning Shift]**

**A)** 241

**B)** 231

**C)** 220

**D)** 210

**8)** Suppose be in an arithmetico-geometric progression. If the common ratio of the corresponding geometric progression is 2 and the sum of all 5 terms of the arithmetico-geometric progression is , then is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 10th April Evening Shift]**

**MCQ Single AnswerNumerical Question**

**9)** If to terms, then is equal to

**[JEE Main 2023 (Online) 10th April Evening Shift]**

**A)** 227

**B)** 226

**C)** 220

**D)** 223

**10)** Let . Then the value of is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 11th April Morning Shift]**

**MCQ Single AnswerNumerical Question**

**11)** Let be in an arithmetic progression, with and their mean equal to 200 . If , then the mean of is

**[JEE Main 2023 (Online) 11th April Morning Shift]**

**A)** 10051.50

**B)** 10049.50

**C)** 10100

**D)** 10101.50

**12)** For , if the sum of the series is 10 , then the value of is \_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 11th April Evening Shift]**

**MCQ Single Answer**

**13)** Let and be positive real numbers such that . If the maximum value of is , then the value of is

**[JEE Main 2023 (Online) 11th April Evening Shift]**

**A)** 110

**B)** 108

**C)** 90

**D)** 55

**MCQ Single AnswerNumerical Question**

**14)** Let be a sequence such that . If , where are the first prime numbers, then is equal to

**[JEE Main 2023 (Online) 12th April Morning Shift]**

**A)** 5

**B)** 7

**C)** 6

**D)** 8

**15)** The sum to terms of the series is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 13th April Morning Shift]**

**MCQ Single Answer**

**16)** Let respectively be the sum to 12 terms of 10 A.P. s whose first terms are and the common differences are respectively. Then is equal to :

**[JEE Main 2023 (Online) 13th April Morning Shift]**

**A)** 7360

**B)** 7220

**C)** 7260

**D)** 7380

**MCQ Single AnswerNumerical Question**

**17)** Let a, a, a, .... be a G.P. of increasing positive numbers. Let the sum of its 6th and 8th terms be 2 and the product of its 3rd and 5th terms be . Then is equal to

**[JEE Main 2023 (Online) 13th April Evening Shift]**

**A)** 2

**B)** 2

**C)** 3

**D)** 3

**18)** If the sum of the series  
  
  
  
, where and are co-prime, then is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 15th April Morning Shift]**

**MCQ Single AnswerNumerical Question**

**19)** Let and be two arithmetic means and be three geometric  
  
 means of two distinct positive numbers. Then is equal to :

**[JEE Main 2023 (Online) 15th April Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**20)** The 4 term of GP is 500 and its common ratio is . Let denote the sum of the first n terms of this GP. If and , then the number of possible values of m is \_\_\_\_\_\_\_\_\_\_\_

**[JEE Main 2023 (Online) 24th January Morning Shift]**

**MCQ Single AnswerNumerical QuestionNumerical QuestionNumerical QuestionNumerical QuestionNumerical QuestionNumerical Question**

**21)** For three positive integers p, q, r, and r = pq + 1 such that 3, 3 log, 3 log, 7 log are in A.P. with common difference . Then r-p-q is equal to

**[JEE Main 2023 (Online) 24th January Morning Shift]**

**A)** 12

**B)** 6

**C)** 6

**D)** 2

**22)** If , then the value of is

**[JEE Main 2023 (Online) 24th January Evening Shift]**

**23)** For the two positive numbers if and are in a geometric progression, while and are in an arithmetic progression, then is equal to \_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 25th January Evening Shift]**

**24)** Let be a of increasing positive numbers. If the product of fourth and sixth terms is 9 and the sum of fifth and seventh terms is 24, then is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 29th January Morning Shift]**

**25)** Let and , be two G.P.s with common ratios and respectively such that and . Let . If and then is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 29th January Evening Shift]**

**26)** Let and . If and , then is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 29th January Evening Shift]**

**27)** Let , where and Then is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 30th January Morning Shift]**

**MCQ Single AnswerNumerical Question**

**28)** If , then is equal to :

**[JEE Main 2023 (Online) 30th January Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**29)** The common term of the series

**[JEE Main 2023 (Online) 30th January Evening Shift]**

**MCQ Single AnswerNumerical Question**

**30)** Let and be in A.P., and and be in G.P. If the sum of first 20 terms of an A.P., whose first term is and the common difference is is , then is equal to :

**[JEE Main 2023 (Online) 30th January Evening Shift]**

**A)** 343

**B)** 216

**C)**

**D)**

**31)** Let be in A.P. If and , then   
  
  
 is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 31st January Morning Shift]**

**MCQ Single AnswerNumerical Question**

**32)** If the sum and product of four positive consecutive terms of a G.P., are 126 and 1296 , respectively, then the sum of common ratios of all such GPs is

**[JEE Main 2023 (Online) 31st January Morning Shift]**

**A)** 7

**B)** 14

**C)** 3

**D)**

**33)** Let be an A.P. If the sum of its first four terms is 50 and the sum of its last four terms is 170 , then the product of its middle two terms is \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 1st February Morning Shift]**

**MCQ Single AnswerNumerical Question**

**34)** The sum of 10 terms of the series  
 is

**[JEE Main 2023 (Online) 1st February Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**35)** The sum is \_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 31st January Evening Shift]**

**MCQ Single AnswerNumerical Question**

**36)** Let be an A.P. If , the product is minimum and the sum of its first terms is zero, then is equal to :

**[JEE Main 2023 (Online) 31st January Evening Shift]**

**A)** 24

**B)**

**C)** 9

**D)**

**37)** The sum of the common terms of the following three arithmetic progressions.  
,  
 and  
,  
is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2023 (Online) 1st February Evening Shift]**

**MCQ Single Answer**

**38)** The sum is equal to :

**[JEE Main 2023 (Online) 1st February Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical QuestionNumerical QuestionNumerical Question**

**39)**   
Then is equal to

**[JEE Main 2022 (Online) 29th July Evening Shift]**

**A)** 483

**B)** 528

**C)** 575

**D)** 624

**40)** If , then 34 k is equal to \_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 29th July Morning Shift]**

**41)** Let be an A.P. If , then is equal to \_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 29th July Morning Shift]**

**42)** , where m is odd, then m . n is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 28th July Evening Shift]**

**MCQ Single AnswerNumerical Question**

**43)** Consider the sequence such that and for If , then is equal to :

**[JEE Main 2022 (Online) 28th July Morning Shift]**

**A)** 30

**B)** 31

**C)** 60

**D)** 61

**44)**  is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 27th July Evening Shift]**

**MCQ Single Answer**

**45)** Let the sum of an infinite G.P., whose first term is a and the common ratio is r, be 5 . Let the sum of its first five terms be . Then the sum of the first 21 terms of an AP, whose first term is term is and the common difference is , is equal to :

**[JEE Main 2022 (Online) 27th July Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical QuestionNumerical QuestionNumerical Question**

**46)** Suppose , .. be an arithmetic progression of natural numbers. If the ratio of the sum of first five terms to the sum of first nine terms of the progression is and , , then the sum of the first ten terms of the progression is equal to

**[JEE Main 2022 (Online) 27th July Morning Shift]**

**A)** 290

**B)** 380

**C)** 460

**D)** 510

**47)** Different A.P.'s are constructed with the first term 100, the last term 199, and integral common differences. The sum of the common differences of all such A.P.'s having at least 3 terms and at most 33 terms is \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 26th July Evening Shift]**

**48)** If , where m and n are co-prime, then is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 26th July Evening Shift]**

**49)** The series of positive multiples of 3 is divided into sets : Then the sum of the elements in the set is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 26th July Morning Shift]**

**MCQ Single Answer**

**50)** Consider two G.Ps. 2, 22, 23, ..... and 4, 42, 43, .... of 60 and n terms respectively. If the geometric mean of all the 60 + n terms is , then is equal to :

**[JEE Main 2022 (Online) 26th July Morning Shift]**

**A)** 560

**B)** 1540

**C)** 1330

**D)** 2600

**MCQ Single AnswerNumerical QuestionNumerical Question**

**51)** The sum is equal to

**[JEE Main 2022 (Online) 25th July Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**52)** Let and for every   
  
natural number . Then is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 25th July Morning Shift]**

**53)** Let be two non-zero real numbers. If and are the roots of the equation and and s are the roots of the equation , such that are in A.P., then is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 25th July Morning Shift]**

**MCQ Single Answer**

**54)** The value of is equal to:

**[JEE Main 2022 (Online) 30th June Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**55)** If , where n is an even integer, is an arithmetic progression with common difference 1, and , then n is equal to :

**[JEE Main 2022 (Online) 24th June Morning Shift]**

**A)** 48

**B)** 96

**C)** 92

**D)** 104

**MCQ Single AnswerNumerical QuestionNumerical Question**

**56)** Let x, y > 0. If x3y2 = 215, then the least value of 3x + 2y is

**[JEE Main 2022 (Online) 24th June Evening Shift]**

**A)** 30

**B)** 32

**C)** 36

**D)** 40

**57)** The greatest integer less than or equal to the sum of first 100 terms of the sequence ...... is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 25th June Morning Shift]**

**58)** For a natural number n, let . Then, the value of is \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 25th June Morning Shift]**

**MCQ Single Answer**

**59)** If , then

**[JEE Main 2022 (Online) 25th June Evening Shift]**

**A)**  are in A.P. with common difference 2

**B)**  are in an A.P. with common difference 2

**C)**  are in a G.P.

**D)**  are in an A.P. with common difference 2

**MCQ Single AnswerNumerical Question**

**60)** The sum 1 + 2 . 3 + 3 . 32 + ......... + 10 . 39 is equal to :

**[JEE Main 2022 (Online) 25th June Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**61)** If a1 (> 0), a2, a3, a4, a5 are in a G.P., a2 + a4 = 2a3 + 1 and 3a2 + a3 = 2a4, then a2 + a4 + 2a5 is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 26th June Evening Shift]**

**MCQ Single AnswerNumerical Question**

**62)** If and , then is equal to :

**[JEE Main 2022 (Online) 26th June Evening Shift]**

**A)**

**B)** 1

**C)**

**D)**

**63)** If the sum of the first ten terms of the series  
is , where m and n are co-prime numbers, then m + n is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 27th June Morning Shift]**

**MCQ Single Answer**

**64)** , where a, b, c are in A.P. and |a| < 1, |b| < 1, |c| < 1, abc 0, then :

**[JEE Main 2022 (Online) 27th June Morning Shift]**

**A)** x, y, z are in A.P.

**B)** x, y, z are in G.P.

**C)** , , are in A.P.

**D)**  + + = 1 (a + b + c)

**MCQ Single Answer**

**65)** If a1, a2, a3 ...... and b1, b2, b3 ....... are A.P., and a1 = 2, a10 = 3, a1b1 = 1 = a10b10, then a4 b4 is equal to -

**[JEE Main 2022 (Online) 27th June Evening Shift]**

**A)**

**B)** 1

**C)**

**D)**

**MCQ Single Answer**

**66)** Let . Then 4S is equal to

**[JEE Main 2022 (Online) 27th June Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical Question**

**67)** Let A1, A2, A3, ....... be an increasing geometric progression of positive real numbers. If A1A3A5A7 = and A2 + A4 = , then the value of A6 + A8 + A10 is equal to

**[JEE Main 2022 (Online) 28th June Morning Shift]**

**A)** 33

**B)** 37

**C)** 43

**D)** 47

**68)** Let for n = 1, 2, ......, 50, Sn be the sum of the infinite geometric progression whose first term is n2 and whose common ratio is . Then the value of   
  
 is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 28th June Evening Shift]**

**MCQ Single AnswerNumerical Question**

**69)** If n arithmetic means are inserted between a and 100 such that the ratio of the first mean to the last mean is 1 : 7 and a + n = 33, then the value of n is :

**[JEE Main 2022 (Online) 28th June Evening Shift]**

**A)** 21

**B)** 22

**C)** 23

**D)** 24

**70)** Let 3, 6, 9, 12, ....... upto 78 terms and 5, 9, 13, 17, ...... upto 59 terms be two series. Then, the sum of the terms common to both the series is equal to \_\_\_\_\_\_\_\_.

**[JEE Main 2022 (Online) 29th June Evening Shift]**

**MCQ Single Answer**

**71)** The sum of the infinite series is equal to :

**[JEE Main 2022 (Online) 29th June Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**72)** Let be a sequence such that and for all n 0. Then, is equal to:

**[JEE Main 2022 (Online) 29th June Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**73)** Let a1, a2, ..........., a21 be an AP such that . If the sum of this AP is 189, then a6a16 is equal to :

**[JEE Main 2021 (Online) 1st September Evening Shift]**

**A)** 57

**B)** 72

**C)** 48

**D)** 36

**MCQ Single AnswerNumerical Question**

**74)** Let Sn = 1 . (n 1) + 2 . (n 2) + 3 . (n 3) + ..... + (n 1) . 1, n 4.  
  
The sum is equal to :

**[JEE Main 2021 (Online) 1st September Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**75)** If , then 160 S is equal to \_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 31st August Evening Shift]**

**MCQ Single AnswerNumerical Question**

**76)** Let a1, a2, a3, ..... be an A.P. If , p 10, then is equal to :

**[JEE Main 2021 (Online) 31st August Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**77)** The mean of 10 numbers 7 8, 10 10, 13 12, 16 14, ....... is \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 31st August Morning Shift]**

**MCQ Single Answer**

**78)** Three numbers are in an increasing geometric progression with common ratio r. If the middle number is doubled, then the new numbers are in an arithmetic progression with common difference d. If the fourth term of GP is 3 r2, then r2 d is equal to :

**[JEE Main 2021 (Online) 31st August Morning Shift]**

**A)** 7 7

**B)** 7 +

**C)** 7

**D)** 7 + 3

**MCQ Single Answer**

**79)** The sum of 10 terms of the series   
  
  
 is :

**[JEE Main 2021 (Online) 31st August Morning Shift]**

**A)** 1

**B)**

**C)**

**D)**

**MCQ Single Answer**

**80)** If 0 < x < 1 and , then the value of e1 + y at is :

**[JEE Main 2021 (Online) 27th August Evening Shift]**

**A)**

**B)** 2e

**C)**

**D)** 2e2

**MCQ Single Answer**

**81)** If for x, y R, x > 0, y = log10x + log10x1/3 + log10x1/9 + ...... upto terms   
  
and , then the ordered pair (x, y) is equal to :

**[JEE Main 2021 (Online) 27th August Morning Shift]**

**A)** (106, 6)

**B)** (104, 6)

**C)** (102, 3)

**D)** (106, 9)

**MCQ Single AnswerNumerical QuestionNumerical Question**

**82)** If 0 < x < 1, then , is equal to :

**[JEE Main 2021 (Online) 27th August Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**83)** Let a1, a2, ......., a10 be an AP with common difference 3 and b1, b2, ........., b10 be a GP with common ratio 2. Let ck = ak + bk, k = 1, 2, ......, 10. If c2 = 12 and c3 = 13, then is equal to \_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 26th August Evening Shift]**

**84)** The sum of all 3-digit numbers less than or equal to 500, that are formed without using the digit "1" and they all are multiple of 11, is \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 26th August Evening Shift]**

**MCQ Single Answer**

**85)** If the sum of an infinite GP a, ar, ar2, ar3, ....... is 15 and the sum of the squares of its each term is 150, then the sum of ar2, ar4, ar6, ....... is :

**[JEE Main 2021 (Online) 26th August Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical QuestionNumerical Question**

**86)** The sum of the series   
  
 when x = 2 is :

**[JEE Main 2021 (Online) 26th August Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**87)** If are in an arithmetic progression, then the value of x is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 27th July Morning Shift]**

**88)** If the value of  
  
   
  
 is , then 2 is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 25th July Morning Shift]**

**MCQ Single AnswerNumerical Question**

**89)** Let Sn be the sum of the first n terms of an arithmetic progression. If S3n = 3S2n, then the value of is :

**[JEE Main 2021 (Online) 25th July Morning Shift]**

**A)** 6

**B)** 4

**C)** 2

**D)** 8

**90)** The sum of all the elements in the set {n {1, 2, ....., 100} | H.C.F. of n and 2040 is 1} is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 22th July Evening Shift]**

**MCQ Single AnswerNumerical QuestionNumerical Question**

**91)** Let Sn denote the sum of first n-terms of an arithmetic progression. If S10 = 530, S5 = 140, then S20 S6 is equal to:

**[JEE Main 2021 (Online) 22th July Evening Shift]**

**A)** 1862

**B)** 1842

**C)** 1852

**D)** 1872

**92)** Let be a sequence such that a1 = 1, a2 = 1 and for all n 1. Then the value of is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 20th July Evening Shift]**

**93)** For k N, let , where . Then the value of is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 20th July Evening Shift]**

**MCQ Single Answer**

**94)** If sum of the first 21 terms of the series , where x > 0 is 504, then x is equal to

**[JEE Main 2021 (Online) 20th July Evening Shift]**

**A)** 243

**B)** 9

**C)** 7

**D)** 81

**MCQ Single Answer**

**95)** Let S1 be the sum of first 2n terms of an arithmetic progression. Let S2 be the sum of first 4n terms of the same arithmetic progression. If (S2 S1) is 1000, then the sum of the first 6n terms of the arithmetic progression is equal to :

**[JEE Main 2021 (Online) 18th March Evening Shift]**

**A)** 7000

**B)** 1000

**C)** 3000

**D)** 5000

**MCQ Single Answer**

**96)**  is equal to

**[JEE Main 2021 (Online) 18th March Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical QuestionNumerical QuestionNumerical QuestionNumerical QuestionNumerical Question**

**97)** If , are natural numbers such that   
 199 = (100)(100) + (99)(101) + (98)(102) + ...... + (1)(199), then the slope of the line passing through (, ) and origin is :

**[JEE Main 2021 (Online) 18th March Morning Shift]**

**A)** 540

**B)** 550

**C)** 530

**D)** 510

**98)** Let , a and b be in G.P. and , , 6 be in A.P., where a, b > 0. Then 72(a + b) is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 16th March Evening Shift]**

**99)** Sn(x) = loga1/2x + loga1/3x + loga1/6x + loga1/11x + loga1/18x + loga1/27x + ...... up to n-terms, where a > 1. If S24(x) = 1093 and S12(2x) = 265, then value of a is equal to \_\_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 16th March Evening Shift]**

**100)** Consider an arithmetic series and a geometric series having four initial terms from the set {11, 8, 21, 16, 26, 32, 4}. If the last terms of these series are the maximum possible four digit numbers, then the number of common terms in these two series is equal to \_\_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 16th March Morning Shift]**

**101)** If the arithmetic mean and geometric mean of the pth and qth terms of the   
sequence 16, 8, 4, 2, ...... satisfy the equation  
 4x2 9x + 5 = 0, then p + q is equal to \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 26th February Evening Shift]**

**102)** The total number of 4-digit numbers whose greatest common divisor with 18 is 3, is \_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 26th February Evening Shift]**

**MCQ Single Answer**

**103)** The sum of the series   
  
 is equal to :

**[JEE Main 2021 (Online) 26th February Evening Shift]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**104)** In an increasing geometric series, the sum of the second and the sixth term is and the product of the third and fifth term is 25. Then, the sum of 4th, 6th and 8th terms is equal to :

**[JEE Main 2021 (Online) 26th February Morning Shift]**

**A)** 30

**B)** 32

**C)** 26

**D)** 35

**MCQ Single AnswerNumerical Question**

**105)** The sum of the infinite series   
 is equal to :

**[JEE Main 2021 (Online) 26th February Morning Shift]**

**A)**

**B)**

**C)**

**D)**

**106)** Let A1, A2, A3, ....... be squares such that for each n 1, the length of the side of An equals the length of diagonal of An+1. If the length of A1 is 12 cm, then the smallest value of n for which area of An is less than one, is \_\_\_\_\_\_\_\_\_\_.

**[JEE Main 2021 (Online) 25th February Morning Shift]**

**MCQ Single Answer**

**107)** If and then :

**[JEE Main 2021 (Online) 25th February Morning Shift]**

**A)** xy z = (x + y)z

**B)** xyz = 4

**C)** xy + z = (x + y)z

**D)** xy + yz + zx = z

**MCQ Single Answer**

**108)** The common difference of the A.P.   
b1, b2, … , bm  
 is 2 more than the common  
 difference of A.P. a1, a2, …, an. If  
 a40 = –159, a100 = –399 and  
b100 = a70, then b1  
 is equal to :

**[JEE Main 2020 (Online) 6th September Evening Slot]**

**A)** 127

**B)** 81

**C)** –127

**D)** -81

**MCQ Single Answer**

**109)** Let a , b, c , d and p be any non zero distinct real numbers such that  
  
(a2 + b2 + c2)p2 – 2(ab + bc + cd)p + (b2 + c2 + d2) = 0. Then :

**[JEE Main 2020 (Online) 6th September Morning Slot]**

**A)** a, c, p are in G.P.

**B)** a, b, c, d are in G.P.

**C)** a, b, c, d are in A.P.

**D)** a, c, p are in A.P.

**MCQ Single Answer**

**110)** If the sum of the first 20 terms of the series  
  
 is 460,  
  
then x is equal to :

**[JEE Main 2020 (Online) 5th September Evening Slot]**

**A)** e2

**B)** 71/2

**C)** 72

**D)** 746/21

**MCQ Single Answer**

**111)** If the sum of the second, third and fourth terms  
of a positive term G.P. is 3 and the sum of its  
sixth, seventh and eighth terms is 243, then the  
sum of the first 50 terms of this G.P. is :

**[JEE Main 2020 (Online) 5th September Evening Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**112)** If , 14 and are the first three terms of an A.P. for some , then the sixth  
terms of this A.P. is:

**[JEE Main 2020 (Online) 5th September Morning Slot]**

**A)** 66

**B)** 81

**C)** 65

**D)** 78

**MCQ Single Answer**

**113)** If 210 + 29.31 + 28.32 +.....+ 2.39 + 310 = S - 211, then S is equal to :

**[JEE Main 2020 (Online) 5th September Morning Slot]**

**A)**

**B)** 311 — 212

**C)** 2.311

**D)** 311

**MCQ Single Answer**

**114)** Let a1, a2, ..., an be a given A.P. whose  
 common difference is an integer and   
Sn = a1 + a2 + .... + an. If a1 = 1, an = 300 and 15 n 50, then   
the ordered pair (Sn-4, an–4) is equal to:

**[JEE Main 2020 (Online) 4th September Evening Slot]**

**A)** (2480, 249)

**B)** (2480, 248)

**C)** (2490, 248)

**D)** (2490, 249)

**MCQ Single AnswerNumerical Question**

**115)** If 1+(1–22.1)+(1–42.3)+(1-62.5)+......+(1-202.19)= - 220, then an ordered pair is equal to:

**[JEE Main 2020 (Online) 4th September Morning Slot]**

**A)** (11, 103)

**B)** (10, 103)

**C)** (10, 97)

**D)** (11, 97)

**116)** If m arithmetic means (A.Ms) and three  
geometric means (G.Ms) are inserted between  
3 and 243 such that 4th A.M. is equal to 2nd  
G.M., then m is equal to \_\_\_\_\_\_\_\_\_ .

**[JEE Main 2020 (Online) 3rd September Evening Slot]**

**MCQ Single AnswerNumerical Question**

**117)** If the sum of the series  
  
  
20 + 19 + 19 + 18 + ...  
  
  
upto nth term is 488  
and the nth term is negative, then :

**[JEE Main 2020 (Online) 3rd September Evening Slot]**

**A)** n = 41

**B)** n = 60

**C)** nth term is –4

**D)** nth term is -4

**118)** The value of is equal to \_\_\_\_\_\_.

**[JEE Main 2020 (Online) 3rd September Morning Slot]**

**MCQ Single Answer**

**119)** If the first term of an A.P. is 3 and the sum of  
its first 25 terms is equal to the sum of its next  
15 terms, then the common difference of this  
A.P. is :

**[JEE Main 2020 (Online) 3rd September Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**120)** Let S be the sum of the first 9 terms of the  
series :  
  
{x + k} + {x2 + (k + 2)} + {x3 + (k + 4)}  
  
+ {x4 + (k + 6)} + .... where a 0 and x 1.  
  
  
If S = , then k is equal to :

**[JEE Main 2020 (Online) 2nd September Evening Slot]**

**A)** -3

**B)** 1

**C)** -5

**D)** 3

**MCQ Single Answer**

**121)** If the sum of first 11 terms of an A.P.,  
  
a1, a2, a3, ....  
is 0 (a 0), then the sum of the A.P.,  
  
a1  
, a3  
, a5  
,....., a23 is ka1  
, where k is equal to :

**[JEE Main 2020 (Online) 2nd September Evening Slot]**

**A)**

**B)** -

**C)**

**D)** -

**MCQ Single Answer**

**122)** The sum of the first three terms of a G.P. is S and  
their product is 27. Then all such S lie in :

**[JEE Main 2020 (Online) 2nd September Morning Slot]**

**A)** [-3, )

**B)** (-, 9]

**C)** (-, -9] [-3, )

**D)** (-, -3] [9, )

**MCQ Single Answer**

**123)** If |x| < 1, |y| < 1 and x y, then the sum to infinity  
of the following series  
  
  
(x + y) + (x2+xy+y2) + (x3+x2y + xy2+y3) + ....

**[JEE Main 2020 (Online) 2nd September Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single AnswerNumerical Question**

**124)** Let an be the nth term of a G.P. of positive terms.  
  
  
 and ,  
   
  
  
then is equal to :

**[JEE Main 2020 (Online) 9th January Evening Slot]**

**A)** 150

**B)** 175

**C)** 225

**D)** 300

**125)** The number of terms common to the two A.P.'s  
3, 7, 11, ....., 407 and 2, 9, 16, ....., 709 is \_\_\_\_\_\_.

**[JEE Main 2020 (Online) 9th January Evening Slot]**

**MCQ Single AnswerNumerical Question**

**126)** The product ... to is equal  
to :

**[JEE Main 2020 (Online) 9th January Morning Slot]**

**A)**

**B)**

**C)** 1

**D)** 2

**127)** The sum, is equal to  
\_\_\_\_\_\_\_\_.

**[JEE Main 2020 (Online) 8th January Evening Slot]**

**MCQ Single AnswerNumerical Question**

**128)** If the 10th term of an A.P. is and its 20th term  
is , then the sum of its first 200 terms is

**[JEE Main 2020 (Online) 8th January Evening Slot]**

**A)** 100

**B)**

**C)**

**D)** 50

**129)** The sum is :

**[JEE Main 2020 (Online) 8th January Morning Slot]**

**MCQ Single Answer**

**130)** Let ƒ : R R be such that for all   
x R   
(21+x + 21–x), ƒ(x) and (3x + 3–x) are in  
A.P.,   
then the minimum value of ƒ(x) is

**[JEE Main 2020 (Online) 8th January Morning Slot]**

**A)** 2

**B)** 0

**C)** 3

**D)** 4

**MCQ Single Answer**

**131)** If the sum of the first 40 terms of the series,   
3 + 4 + 8 + 9 + 13 + 14 + 18 + 19 + ..... is (102)m, then m is equal to :

**[JEE Main 2020 (Online) 7th January Evening Slot]**

**A)** 20

**B)** 5

**C)** 10

**D)** 25

**MCQ Single Answer**

**132)** Let   
,   
,   
,....... be a G.P. such that   
 < 0,   
 +   
 = 4 and   
 +   
 = 16.   
If , then is  
equal to:

**[JEE Main 2020 (Online) 7th January Evening Slot]**

**A)** 171

**B)** -171

**C)** -513

**D)**

**MCQ Single Answer**

**133)** Five numbers are in A.P. whose sum is 25 and product is 2520. If one of these five numbers is - , then the greatest number amongst them is:

**[JEE Main 2020 (Online) 7th January Morning Slot]**

**A)**

**B)** 27

**C)** 7

**D)** 16

**MCQ Single Answer**

**134)** If a1, a2, a3, ..... are in A.P. such that a1 + a7 + a16 = 40, then the sum of the first 15 terms of this A.P. is :

**[JEE Main 2019 (Online) 12th April Evening Slot]**

**A)** 120

**B)** 200

**C)** 150

**D)** 280

**MCQ Single Answer**

**135)** Let Sn denote the sum of the first n terms of an A.P. If S4 = 16 and S6= – 48, then S10 is equal to :

**[JEE Main 2019 (Online) 12th April Morning Slot]**

**A)** - 320

**B)** - 380

**C)** - 460

**D)** - 210

**MCQ Single Answer**

**136)** For x R, let [x] denote the greatest integer x, then the sum of the series  
 is :

**[JEE Main 2019 (Online) 12th April Morning Slot]**

**A)** - 153

**B)** - 135

**C)** - 133

**D)** - 131

**MCQ Single Answer**

**137)** Let a1, a2, a3,......be an A.P. with a6 = 2. Then the common difference of this A.P., which maximises the  
product a1a4a5, is :

**[JEE Main 2019 (Online) 10th April Evening Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**138)** Let , b and c be in G.P. with common ratio r, where 0 and 0 < r   
. If 3, 7b and 15c are the first three  
terms of an A.P., then the 4th term of this A.P. is :

**[JEE Main 2019 (Online) 10th April Evening Slot]**

**A)**

**B)**

**C)** 5

**D)**

**MCQ Single Answer**

**139)** The sum  
  
 is equal to :

**[JEE Main 2019 (Online) 10th April Evening Slot]**

**A)** 620

**B)** 1240

**C)** 1860

**D)** 660

**MCQ Single Answer**

**140)** If a1, a2, a3, ............... an are in A.P. and a1 + a4 + a7 + ........... + a16 = 114, then a1 + a6 + a11 + a16 is equal to :

**[JEE Main 2019 (Online) 10th April Morning Slot]**

**A)** 38

**B)** 98

**C)** 76

**D)** 64

**MCQ Single Answer**

**141)** The sum  
  
 upto 10 terms is:

**[JEE Main 2019 (Online) 10th April Morning Slot]**

**A)** 600

**B)** 660

**C)** 680

**D)** 620

**MCQ Single Answer**

**142)** The sum of the series 1 + 2 × 3 + 3 × 5 + 4 × 7 +....  
upto 11th term is :-

**[JEE Main 2019 (Online) 9th April Evening Slot]**

**A)** 945

**B)** 916

**C)** 915

**D)** 946

**MCQ Single Answer**

**143)** If the sum and product of the first three term in  
an A.P. are 33 and 1155, respectively, then a value  
of its 11th term is :-

**[JEE Main 2019 (Online) 9th April Evening Slot]**

**A)** –25

**B)** –36

**C)** 25

**D)** –35

**MCQ Single Answer**

**144)** Some identical balls are arranged in rows to form  
an equilateral triangle. The first row consists of one  
ball, the second row consists of two balls and so  
on. If 99 more identical balls are addded to the total  
number of balls used in forming the equilaterial  
triangle, then all these balls can be arranged in a  
square whose each side contains exactly 2 balls  
less than the number of balls each side of the  
triangle contains. Then the number of balls used to  
form the equilateral triangle is :-

**[JEE Main 2019 (Online) 9th April Evening Slot]**

**A)** 262

**B)** 190

**C)** 157

**D)** 225

**MCQ Single Answer**

**145)** Let the sum of the first n terms of a non-constant  
A.P., a1, a2, a3, ..... be , where  
A is a constant. If d is the common difference of  
this A.P., then the ordered pair (d, a50) is equal to

**[JEE Main 2019 (Online) 9th April Morning Slot]**

**A)** (A, 50+45A)

**B)** (50, 50+45A)

**C)** (A, 50+46A)

**D)** (50, 50+46A)

**MCQ Single Answer**

**146)** If three distinct numbers a, b, c are in G.P. and the  
equations ax2  
 + 2bx + c = 0 and  
dx2   
 + 2ex + ƒ = 0 have a common root, then  
which one of the following statements is  
correct?

**[JEE Main 2019 (Online) 8th April Evening Slot]**

**A)** , , are in G.P.

**B)** d, e, ƒ are in A.P

**C)** d, e, ƒ are in G.P

**D)** , , are in A.P.

**MCQ Single Answer**

**147)** The sum  
 is equal to

**[JEE Main 2019 (Online) 8th April Evening Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**148)** The sum of all natural numbers 'n' such that  
100 < n < 200 and H.C.F. (91, n) > 1 is :

**[JEE Main 2019 (Online) 8th April Morning Slot]**

**A)** 3221

**B)** 3121

**C)** 3203

**D)** 3303

**MCQ Single Answer**

**149)** If nC4, nC5 and nC6 are in A.P., then n can be :

**[JEE Main 2019 (Online) 12th January Evening Slot]**

**A)** 11

**B)** 12

**C)** 9

**D)** 14

**MCQ Single Answer**

**150)** If sin4 + 4 cos4 + 2 = 4 sin cos ; , [0, ],   
  
then cos( + ) cos( ) is equal to :

**[JEE Main 2019 (Online) 12th January Evening Slot]**

**A)**

**B)** 0

**C)**  1

**D)**

**MCQ Single Answer**

**151)** If the sum of the first 15 terms of the series is equal to 225 k, then k  
is equal to :

**[JEE Main 2019 (Online) 12th January Evening Slot]**

**A)** 9

**B)** 108

**C)** 27

**D)** 54

**MCQ Single Answer**

**152)** The product of three consecutive terms of a G.P. is 512. If 4 is added to each of the first and the second of these terms, the three terms now form an A.P. Then the sum of the original three terms of the given G.P. is :

**[JEE Main 2019 (Online) 12th January Morning Slot]**

**A)** 36

**B)** 28

**C)** 32

**D)** 24

**MCQ Single Answer**

**153)** LetSk = If A,then A is equal to :

**[JEE Main 2019 (Online) 12th January Morning Slot]**

**A)** 283

**B)** 156

**C)** 301

**D)** 303

**MCQ Single Answer**

**154)** Let x, y be positive real numbers and m, n positive integers. The maximum value of the expression is :

**[JEE Main 2019 (Online) 11th January Evening Slot]**

**A)**

**B)**

**C)**

**D)** 1

**MCQ Single Answer**

**155)** If 19th term of a non-zero A.P. is zero, then its (49th term) : (29th term) is :

**[JEE Main 2019 (Online) 11th January Evening Slot]**

**A)** 2 : 1

**B)** 4 : 1

**C)** 1 : 3

**D)** 3 : 1

**MCQ Single Answer**

**156)** Let a1, a2, . . . . . ., a10 be a G.P. If then equals

**[JEE Main 2019 (Online) 11th January Morning Slot]**

**A)** 53

**B)** 2(52)

**C)** 4(52)

**D)** 54

**MCQ Single Answer**

**157)** The sum of an infinite geometric series with positive terms is 3 and the sum of the cubes of its terms is .Then the common ratio of this series is :

**[JEE Main 2019 (Online) 11th January Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**158)** Let a1, a2, a3, ..... a10 be in G.P. with ai > 0 for i = 1, 2, ….., 10 and S be the set of pairs (r, k), r, k N (the set of natural numbers) for which  
  
  
 0.  
  
  
Then the number of elements in S, is -

**[JEE Main 2019 (Online) 10th January Evening Slot]**

**A)** 10

**B)** 4

**C)** 2

**D)** infinitely many

**MCQ Single Answer**

**159)** The sum of all two digit positive numbers which when divided by 7 yield 2 or 5 as remainder is -

**[JEE Main 2019 (Online) 10th January Morning Slot]**

**A)** 1356

**B)** 1256

**C)** 1365

**D)** 1465

**MCQ Single Answer**

**160)** Let be an A.P.,  
  
  
 and .  
  
  
If = 27 and S - 2T = 75, then is equal to :

**[JEE Main 2019 (Online) 9th January Morning Slot]**

**A)** 47

**B)** 42

**C)** 52

**D)** 57

**MCQ Single Answer**

**161)** Let a, b and c be the 7th, 11th and 13th terms respectively of a non-constant A.P. If these are also three consecutive terms of a G.P., then equal to :

**[JEE Main 2019 (Online) 9th January Evening Slot]**

**A)** 2

**B)**

**C)**

**D)** 4

**MCQ Single Answer**

**162)** The sum of the following series  
  
  
 up to 15 terms, is :

**[JEE Main 2019 (Online) 9th January Evening Slot]**

**A)** 7520

**B)** 7510

**C)** 7830

**D)** 7820

**MCQ Single Answer**

**163)** If a, b, c be three distinct real numbers in G.P. and a + b + c = xb , then x cannot be

**[JEE Main 2019 (Online) 9th January Morning Slot]**

**A)** 2

**B)** -3

**C)** 4

**D)** -2

**MCQ Single Answer**

**164)** Let (xi 0 for i = 1, 2, ..., n) be in A.P. such that x1=4 and x21 = 20. If n is the least positive integer for which then is equal to :

**[JEE Main 2018 (Online) 16th April Morning Slot]**

**A)**

**B)** 3

**C)**

**D)**

**MCQ Single Answer**

**165)** The sum of the first 20 terms of the series   
  
  
 is :

**[JEE Main 2018 (Online) 16th April Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**166)** Let An = . . . . . + (1) and Bn = 1 An.   
  
Then, the least dd natural numbr p, so that Bn > An , for all n p, is :

**[JEE Main 2018 (Online) 15th April Evening Slot]**

**A)** 9

**B)** 7

**C)** 11

**D)** 5

**MCQ Single Answer**

**167)** If a, b, c are in A.P. and a2, b2, c2 are in G.P. such that   
  
a<b<cand a + b + c = then the value of a is :

**[JEE Main 2018 (Online) 15th April Evening Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**168)** If b is the first term of an infinite G.P. whose sum is five, then b lies in the interval :

**[JEE Main 2018 (Online) 15th April Morning Slot]**

**A)** ( , 10]

**B)** (10, 0)

**C)** (0, 10)

**D)** [10, )

**MCQ Single Answer**

**169)** If x1, x2, . . ., xn and , , . . . , are two A.P..s such that x3 = h2 = 8 and x8 = h7 = 20, then x5.h10 equals :

**[JEE Main 2018 (Online) 15th April Morning Slot]**

**A)** 2560

**B)** 2650

**C)** 3200

**D)** 1600

**MCQ Single Answer**

**170)** Let , , , ......... , be in A.P. such that  
  
  
 and .  
  
  
, then m is equal to

**[JEE Main 2018 (Offline)]**

**A)** 33

**B)** 66

**C)** 68

**D)** 34

**MCQ Single Answer**

**171)** Let A be the sum of the first 20 terms and B be the sum of the first 40 terms of the series  
  
12 + 2.22 + 32 + 2.42 + 52 + 2.62 ...........  
  
If B - 2A = 100, then is equal to

**[JEE Main 2018 (Offline)]**

**A)** 496

**B)** 232

**C)** 248

**D)** 464

**MCQ Single Answer**

**172)** Let   
  
  
Sn =   
  
  
If 100 Sn = n, then n is equal to :

**[JEE Main 2017 (Online) 9th April Morning Slot]**

**A)** 199

**B)** 99

**C)** 200

**D)** 19

**MCQ Single Answer**

**173)** If three positive numbers a, b and c are in A.P. such that abc = 8, then the minimum possible value of b is :

**[JEE Main 2017 (Online) 9th April Morning Slot]**

**A)** 2

**B)** 4

**C)** 4

**D)** 4

**MCQ Single Answer**

**174)** If the sum of the first n terms of the series is then n equals :

**[JEE Main 2017 (Online) 8th April Morning Slot]**

**A)** 18

**B)** 15

**C)** 13

**D)** 29

**MCQ Single Answer**

**175)** If the arithmetic mean of two numbers a and b, a > b > 0, is five times their geometric mean, then is equal to :

**[JEE Main 2017 (Online) 8th April Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**176)** For any three positive real numbers a, b and c,  
  
  
9(25 + b2) + 25(c2 - 3c) = 15b(3 + c).  
  
Then

**[JEE Main 2017 (Offline)]**

**A)** b, c and are in G.P.

**B)** b, c and are in A.P.

**C)** , b and c are in A.P.

**D)** , b and c are in G.P.

**MCQ Single Answer**

**177)** Let , b, c . If (x) = ax2 + bx + c is such that  
  
 + b + c = 3 and (x + y) = (x) + (y) + xy,   
  
  
then is equal to

**[JEE Main 2017 (Offline)]**

**A)** 165

**B)** 190

**C)** 255

**D)** 330

**MCQ Single Answer**

**178)** If A > 0, B > 0 and A + B = ,   
  
then the minimum value of tanA + tanB is :

**[JEE Main 2016 (Online) 10th April Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**179)** Let a1, a2, a3, . . . . . . . , an, . . . . . be in A.P.   
  
  
If a3 + a7 + a11 + a15 = 72,   
  
  
then the sum of its first 17 terms is equal to :

**[JEE Main 2016 (Online) 10th April Morning Slot]**

**A)** 306

**B)** 153

**C)** 612

**D)** 204

**MCQ Single Answer**

**180)** Let z = 1 + ai be a complex number, a > 0, such that z3 is a real number.   
  
  
Then the sum 1 + z + z2 + . . . . .+ z11 is equal to :

**[JEE Main 2016 (Online) 10th April Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**181)** Let x, y, z be positive real numbers such that x + y + z = 12 and x3y4z5 = (0.1) (600)3. Then x3 + y3 + z3 is equal to :

**[JEE Main 2016 (Online) 9th April Morning Slot]**

**A)** 270

**B)** 258

**C)** 342

**D)** 216

**MCQ Single Answer**

**182)** For x R, x -1,   
  
  
if (1 + x)2016 + x(1 + x)2015 + x2(1 + x)2014 + . . . . + x2016 =   
  
  
 then a17 is equal to :

**[JEE Main 2016 (Online) 9th April Morning Slot]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**183)** If the sum of the first ten terms of the series then m is equal to :

**[JEE Main 2016 (Offline)]**

**A)** 100

**B)** 99

**C)** 102

**D)** 101

**MCQ Single Answer**

**184)** If the terms of a non-constant A.P. are in G.P., then the common ratio of this G.P. is :

**[JEE Main 2016 (Offline)]**

**A)** 1

**B)**

**C)**

**D)**

**MCQ Single Answer**

**185)** If m is the A.M. of two distinct real numbers l and n and and are three geometric means between and n, then equals:

**[JEE Main 2015 (Offline)]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**186)** The sum of first 9 terms of the series.

**[JEE Main 2015 (Offline)]**

**A)** 142

**B)** 192

**C)** 71

**D)** 96

**MCQ Single Answer**

**187)** If , then k is equal to :

**[JEE Main 2014 (Offline)]**

**A)** 100

**B)** 110

**C)**

**D)**

**MCQ Single Answer**

**188)** Three positive numbers form an increasing G.P. If the middle term in this G.P. is doubled, the new numbers are in A.P. then the common ratio of the G.P. is :

**[JEE Main 2014 (Offline)]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**189)** The sum of first 20 terms of the sequence 0.7, 0.77, 0.777,........,is

**[JEE Main 2013 (Offline)]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**190)**  Statement-1: The sum of the series 1 + (1 + 2 + 4) + (4 + 6 + 9) + (9 + 12 + 16) +.....+ (361 + 380 + 400) is 8000.   
 Statement-2: , for any natural number n.

**[AIEEE 2012]**

**A)** Statement-1 is false, Statement-2 is true.

**B)** Statement-1 is true, Statement-2 is true; Statement-2 is a correct explanation for Statement-1.

**C)** Statement-1 is true, Statement-2 is true; Statement-2 is not a correct explanation for Statement-1.

**D)** Statement-1 is true, Statement-2 is false.

**MCQ Single Answer**

**191)** A man saves ₹ 200 in each of the first three months of his service. In each of the subsequent months his saving increases by ₹ 40 more than the saving of immediately previous month. His total saving from the start of service will be ₹ 11040 after

**[AIEEE 2011]**

**A)** 19 months

**B)** 20 months

**C)** 21 months

**D)** 18 months

**MCQ Single Answer**

**192)** A person is to count 4500 currency notes. Let denote the number of notes he counts in the minute. If = = ....= = 150 and , ,.... are in an AP with common difference - 2, then the time taken by him to count all notes is

**[AIEEE 2010]**

**A)** 34 minutes

**B)** 125 minutes

**C)** 135 minutes

**D)** 24 minutes

**MCQ Single Answer**

**193)** The sum to infinite term of the series is

**[AIEEE 2009]**

**A)** 3

**B)** 4

**C)** 6

**D)** 2

**MCQ Single Answer**

**194)** The first two terms of a geometric progression add up to 12. the sum of the third and the fourth terms is 48. If the terms of the geometric progression are alternately positive and negative, then the first term is

**[AIEEE 2008]**

**A)** - 4

**B)** - 12

**C)** 12

**D)** 4

**MCQ Single Answer**

**195)** In a geometric progression consisting of positive terms, each term equals the sum of the next two terns. Then the common ratio of its progression is equals

**[AIEEE 2007]**

**A)**

**B)**

**C)**

**D)** .

**MCQ Single Answer**

**196)** The sum of series upto infinity is

**[AIEEE 2007]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**197)** Let , , .....be terms on A.P. If equals

**[AIEEE 2006]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**198)** If are in H.P., then the expression is equal to

**[AIEEE 2006]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**199)** The sum of the series ad inf. is

**[AIEEE 2005]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**200)** If where a, b, c are in A.P and then x, y, z are in

**[AIEEE 2005]**

**A)** G.P.

**B)** A.P.

**C)** Arithmetic-Geometric Progression

**D)** H.P.

**MCQ Single Answer**

**201)** The sum of series is

**[AIEEE 2004]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**202)** The sum of the first n terms of the series when n is even. When n is odd the sum is

**[AIEEE 2004]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**203)** Let 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, then a - d equals

**[AIEEE 2004]**

**A)**

**B)** 1

**C)**

**D)** 0

**MCQ Single Answer**

**204)** The sum of the serier up to is equal to

**[AIEEE 2003]**

**A)**

**B)**

**C)**

**D)**

**MCQ Single Answer**

**205)**

**[AIEEE 2002]**

**A)** 425

**B)** - 425

**C)** 475

**D)** - 475

**MCQ Single Answer**

**206)** Sum of infinite number of terms of GP is 20 and sum of their square is 100. The common ratio of GP is

**[AIEEE 2002]**

**A)** 5

**B)** 3/5

**C)** 8/5

**D)** 1/5

**MCQ Single Answer**

**207)** Fifth term of a GP is 2, then the product of its 9 terms is

**[AIEEE 2002]**

**A)** 256

**B)** 512

**C)** 1024

**D)** none of these

**MCQ Single Answer**

**208)** The value of is

**[AIEEE 2002]**

**A)** 1

**B)** 2

**C)** 3/2

**D)** 4

**MCQ Single Answer**

**209)** l, m, n are the , and term of a G.P all positive,

**[AIEEE 2002]**

**A)** - 1

**B)** 2

**C)** 1

**D)** 0

**MCQ Single Answer**

**210)** If 1, are in A.P. then x equals

**[AIEEE 2002]**

**A)**

**B)**

**C)**

**D)**