



MATHS

BOOKS - BEYOND PUBLICATION

PROGRESSIONS

Example

1. Which of these are arithmetic progressions and why?

(i) 2,3,5,7,8,10,15,



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2. Which of these are arithmetic progressions and why?

(ii) 2,5,7,0,12,15,....



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3. Which of these are arithmetic progressions and why?

(iii) $-1, -3, -5, -7, \dots$



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4. Write 3 more Arithmetic Progressions.



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5. Think how each of the list given above form an A.P. Discuss with your friends.

(a) Heights (in cm) of some students of a school standing in a queue in the morning assembly are

147, 148, 149,.....,157



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6. Think how each of the list given above form an

A.P. Discuss with your friends.

(b) Minimum temperatures (in degree celcius)

recorded for a week, in the month of January in a

city, arranged in assending order are

$-3.1, -3.0, -2.9, -2.8, -2.7, -2.6, -2.5$



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7. Think how each of the list given above form an

A.P. Discuss with your friends.

(c) The balance money (in Rs.) after paying 5% of

the total loan of Rs. 1000 every month is

950, 900, 850, 800, ..., 50



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8. Think how each of the list given above form an A.P. Discuss with your friends.

(d) Cash prizes (in Rs.) given by a school to the toppers of classes I to XII are 200, 250, 300, 350,.....,750 respectively.



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9. Think how each of the list given above form an A.P. Discuss with your friends.

(e) Total savings (in Rs.) after every month for 10 month when Rs. 50 are saved each month are 50, 100, 150, 200, 250, 300, 350, 400, 450, 500.



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10. Make a positive Arithmetic Progression in which the common difference is a small positive quantity.



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11. Make an A.P. in which the common difference is big (large) positive quantity.



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12. Make an A.P. in which the common difference is negative.



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13. Write three examples for finite A.P and three for infinite A.P.



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14. Take any Arithmetic progression.



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15. Add a fixed number to each and every term of A.P. Write the resulting numbers as a list.



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16. Similarly subtract a fixed number from each and every term of A.P. Write the resulting numbers as a list.



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17. Multiply and divide each term of A.P. by a fixed number and write the resulting numbers as a list.



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18. Write the negation of the following statements and check whether the resulting statements are true,

The sum of 3 and 4 is 9.



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19. For the AP: $\frac{1}{4}, \frac{-1}{4}, \frac{-3}{4}, \frac{-5}{5}, \dots$, write the first term a and the common difference d .

And find the 7^{th} term.



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20. Which of the following forms an AP? If they form AP, then write next two terms.

(i) 4,10 ,16,22



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21. Which of the following forms an AP? If they form AP, then write next two terms.

(ii) 1, - 1, - 3, - 5,



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22. Which of the following forms an AP? If they form AP, then write next two terms.

(iii) $-2, 2, -2, 2, -2, \dots$



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23. Which of the following forms an AP? If they form AP, then write next two terms.

(iii) $1, 1, 1, 2, 2, 2, 3, 3, 3, \dots$



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24. Which of the following forms an AP? If they form AP, then write next two terms.

(v) $x, 2x, 3x, 4x, \dots$



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25. In which of the following situations, does the list of numbers involved make an arithmetic progression, and why?

(i) The taxi fare after each km when the fare is Rs. 20 for the first km and rises by Rs. 8 for each additional km.



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26. In which of the following situations, does the list of numbers involved make an arithmetic progression, and why?

(ii) The amount of air present in a cylinder when a vacuum pump removes $1/4^{th}$ of the air remaining in the cylinder at a time.



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27. In which of the following situations, does the list of numbers involved make an arithmetic progression, and why?

(iii) The cost of digging a well, after every metre of digging, when it costs Rs. 150 for the first metre and rises by Rs. 50 for each subsequent metre.



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28. In which of the following situations, does the list of numbers involved make an arithmetic

progression, and why?

(iv) The amount of money in the account every year, when Rs. 10000 is deposited at compound interest at 8 % per annum.



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29. Write first four terms of the AP, when the first term a and the common difference d are given as follows:

(i) $a = 10, d = 12.$



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30. Write first four terms of the AP, when the first term a and the common difference d are given as follows:

(i) $a = 10, d = 12.$



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31. Write first four terms of the AP, when the first term a and the common difference d are given as follows:

(iii) $a = 4, d = -3.$



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32. Write first four terms of the AP, when the first term a and the common difference d are given as follows:

(iv) $a = -1, d = \frac{1}{2}$.



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33. Write first four terms of the AP, when the first term a and the common difference d are given as follows:

(v) $a = -1.25, d = -0.25$.



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34. For the following A.Ps, write the first term and the common difference:

(i) 3,1,-1,-3,.....



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35. For the following A.Ps, write the first term and the common difference:

(ii) -5,-1,3,7,.....



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36. For the following A.Ps, write the first term and the common difference:

(iii) $\frac{1}{3}, \frac{5}{3}, \frac{9}{3}, \frac{13}{3}, \dots$



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37. For the following A.Ps, write the first term and the common difference:

(iv) 0.6, 1.7, 2.8, 3.9,



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38. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(i) 2,4,8,16,.....



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39. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(ii) $2, \frac{5}{2}, 3, \frac{7}{2}, \dots\dots$



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40. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(iii) $-1.2, -3.2, -5.2, -7.2, \dots$



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41. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(iv) $-10, -6, -2, 2, \dots$



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42. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(v) $3, 3 + \sqrt{2}, 3 + 2\sqrt{2}, 3 + 3\sqrt{2}, \dots$



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43. Which of the following are Aps? If they form an AP, find the common difference d and write

three more terms.

(vi) $0.2, 0.22, 0.222, 0.2222, \dots$



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44. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(i) $2, 4, 8, 16, \dots$



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45. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(viii) $-\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, -\frac{1}{2}, \dots\dots\dots$



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46. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(ix) $1, 3, 9, 27, \dots\dots\dots$



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47. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(x) $a, 2a, 3a, 4a, \dots$



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48. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(x) $a, 2a, 3a, 4a, \dots$



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49. Which of the following are Aps? If they form an AP, find the common difference d and write three more terms.

(xii) $\sqrt{2}, \sqrt{8}, \sqrt{18}, \sqrt{32}, \dots\dots$



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50. Which of the following are Aps? If they form an AP, find the common difference d and write

three more terms.

(xiii) $\sqrt{3}$, $\sqrt{6}$, $\sqrt{9}$, $\sqrt{12}$,



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51. Find the 10th term of the AP: 5,1,-3,-7



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52. Which term of the AP: 21,18,15, Is -81? Is there any term 0? Give reason for your answer.



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53. Determine the AP whose 3^{rd} term is 5 and the 7^{th} term is 9.



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54. Check whether 301 is a term of the list of numbers 5, 11, 17, 23,



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55. How many two-digit numbers are divisible by 3?



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56. Find the 11^{th} term from the last of the A.P series given below:

A.P : 10, 7, 4,, -62



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57. A sum of Rs. 1000 is invested at 8% simple interest per year. Calculate the interest at the end of each year. Do these interests form a AP? If so, find the interest at the end of 30 years.



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58. If a flower bed, there are 23 rose plants in the first row, 21 in the second, 19 in the third, and so on. There are 5 rose plants in the last row. How many rows are there in the flower bed?



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59. Fill in the blanks in the following table, given that 'a' is the first term, d the common difference and a_n the n^{th} term of the A.P. :

| S. No. | a | d | n | a_n |
|--------|-------|-----|-----|-------|
| i) | 7 | 3 | 8 | ... |
| ii) | -18 | ... | 10 | 0 |
| iii) | ... | -3 | 18 | -5 |
| iv) | -18.9 | 2.5 | ... | 3.6 |
| v) | 3.5 | 0 | 105 | ... |



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60. Find the

(i) 30^{th} term of the A.P. : 10,7,4,



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61. Find the

(ii) 11^{th} term of the A.P. : $-3, \frac{-1}{2}, 2, \dots\dots$



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62. The 17^{th} term of an A.P exceeds its 10^{th} term by 7. find the common difference.



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63. Two APs have the same common difference. The difference between their 100^{th} terms is 100, what is the difference between their 1000^{th} terms ?



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64. How many three-digit numbers are divisible by 7 ?



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65. How many multiples of 4 lie between 10 and 250?



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66. For what value of n , are the n^{th} terms of two Aps : 63, 65, 67, and 3, 10, 17, equal?



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67. Determine the AP whose third term is 16 and the 7^{th} term exceeds the 5^{th} term by 12.



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68. Find the 20^{th} term from the end of the AP : 3, 8, 13,253.



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69. The sum of the 4^{th} and 8^{th} terms of an AP is 24 and the sum of the 6^{th} and 10^{th} terms is 44.

find the first three terms of the AP.



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70. Subba Rao started work in 1995 at an annual salary of Rs. 5000 and received an increment of Rs. 200 each year. In which year did his income reach Rs. 7000 ?



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71. Find the sum of the following Aps,

(i) 2,7,12,.....to 10 terms.

(ii) $-37, -33, -29$, to 12 terms

(iii) 0.6, 1.7, 2.8,..... to 100 terms

(iv) $\frac{1}{15}, \frac{1}{12}, \frac{1}{10}, \dots\dots\dots$ To 11 terms.



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72. Find the sum of the following APs.

(iv) $\frac{1}{15}, \frac{1}{12}, \frac{1}{10}, \dots\dots\dots$ ot 11 terms.



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73. Find the sums given below:

(i) $7 + 10\frac{1}{2} + 14 + \dots + 84.$



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74. Find the sums given below:

(ii) $34 + 32 + 30 + \dots + 10.$



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75. Find the sums given below:

(iii) $-5 + (-8) + (-11) + \dots + (-230)$



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76. In an AP:

(i) Given $a=5$, $d=3$, $a_n = 50$, find n and S_n

(ii) given $a=7$, $a_{13} = 35$, find d and S_{13} .

(iii) given $a_{12} = 37$, $d = 3$, find a and S_{12}

(iv) given $a_3 = 15$, $S_{10} = 125$, find d and a_{10}

(v) given $a=2$, $d= 8$, $S_n = 90$, find n and a_n

(vi) given $a_n = 4$, $d = 2$, $S_n = - 14$, find n and

a .

(vii) given $l=28$, $S= 144$, and there are total 9 terms, find a .



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77. In an AP:

(ii) Given $a = 7$, $a_{13} = 35$, find d and S_{13} .



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78. In an AP:

(iii) Given $a_{12} = 37$, $d = 3$, find a and S_{12} .



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79. In an AP:

(iv) Given $a_3 = 15$, $S_{10} = 125$, find d and a_{10} .



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80. In an AP:

(v) Given $a = 2$, $d = 8$, $S_n = 90$, find n and a_n .



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81. Find the sum of the first 40 positive intergers divisible by 6.



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82. A sum of Rs. 700 is to be used to give seven cash prizes to students of a school for their overall academic performance. If each prize is Rs. 20 less than its preceding prize. Find the value of each of prizes.



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83. In a school, students thought of planting trees in an around the school to reduce air

pollution. It was decided that the number of trees, that each section of each class will plant, will be the same as the class. In which they are studying e.g., a section of Class I will plant 1 tree, a section of Class II will plant 2 trees and so on till Class XII. There are three sections of each class. How many trees will be planted by the students?



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84. A spiral is made up of successive semicircles, with centres alternately at A and B, starting with

centre at A, of radii 0.5 cm, 1.0 cm, 1.5 cm, 2.0 cm, As shown in figure. What is the total length of such a spiral made up of thirteen consecutive semicircles? (Take $\pi = \frac{22}{7}$)

[Hint : Length of successive semicircles is $l_1, l_2, l_3, l_4, \dots$ with centres at A, B, A, B,, respectively.]



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85. 200 logs are stacked in the following manner : 20 logs in the bottom row, 19 in the row above,

18 in the row above to it and so on. In how many rows are the 200 logs placed and how many logs are in the top row ?



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86. In a bucket and ball race, a bucket is placed at the starting point. Which is 5m from the first ball, and other balls are placed 3m apart in a straight line. There are ten balls in the line.



A competitor starts from the bucket, picks up the nearest ball, runs back with it, drops it in the

bucket, runs back to pick up the next ball, runs to the bucket to drop it in, and she continues in the same way until all the balls are in the bucket.

What is the total distance the competitor has to run?

[Hint: To pick up the second ball, the total distance (in metres) run by a competitor is $2 \times 5 + 2 \times (5 + 3)$]



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87. Find which of the following are not G.P.

(i) 6, 12, 24, 48,



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88. Find which of the following are not G.P.

(ii) 1,4,9,16,.....



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89. Find which of the following are not G.P.

(iii) 1, -1, 1, -1,.....



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90. Find which of the following are not G.P.

(iv) $-4, -20, -100, -500, \dots$



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91. Explain why each of the lists above is a G.P.

(i) $1, 4, 16, 64, 256, \dots$



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92. Explain why each of the lists above is a G.P.

(ii) $550, 605, 665.5, \dots$





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93. Explain why each of the lists above is a G.P.

(iii) 256, 128, 64, 32,



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94. Explain why each of the lists above is a G.P.

(iv) 18, 16.2, 14.58, 13.122



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95. To know about a G.P. What is minimum information that we need?



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96. Write the G.P. If the first term $a=3$, and the common ratio $r=2$.



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97. Write G.P. If $a = 256, r = \frac{-1}{2}$.



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98. Find the common ratio of the G.P.

$$25, -5, 1, \frac{-1}{5}.$$



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99. Which of the following list of number form G.P. ?

(i) 3, 6, 12,



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100. Which of the following list of number form

G.P. ?

(ii) 64, -32, 16,



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101. Which of the following list of number form

G.P. ?

(iii) $\frac{1}{64}, \frac{1}{32}, \frac{1}{8}, \dots$



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102. In which of the following situations, does the list of numbers involved in the form a G.P.?

(i) Salary of Sharmila, when her salary is Rs. 5,00,000 for the first year and expected to receive yearly increase of 10%.



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103. In which of the following situations, does the list of numbers involved in the form a G.P.?

(ii) Number of bricks needed to make each step, if the stair case has total 30 steps. Bottom step

needs 100 bricks and each successive step needs 2 bricks less than the previous step.



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104. In which of the following situations, does the list of numbers involved in the form a G.P.?

(iii) Perimeter of the each triangle , when the mid-points of sides of an equilateral triangle whose side is 24 cm are joined to form another triangle, whose mid-point in turn are joined to form still another triangle and the process

continues indefinitely.



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105. Write three terms of the G.P. when the first term 'a' and the common ratio 'r' are given.

(i) $a = 4, r = 3$



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106. Write three terms of the G.P. when the first term 'a' and the common ratio 'r' are given.

$$(ii) a = \sqrt{5}, r = \frac{1}{5}.$$



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107. Write three terms of the G.P. when the first term 'a' and the common ratio 'r' are given.

$$(iii) a = 81, r = -\frac{1}{3}.$$



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108. Write three terms of the G.P. when the first term 'a' and the common ratio 'r' are given.

$$(iv) a = \frac{1}{64}, r = 2.$$



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109. Which of the following are G.P.? If they are G.P., write three more terms.

$$(i) 4, 8, 16, \dots$$



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110. Which of the following are G.P.? If they are G.P., write three more terms.

(ii) $\frac{1}{3}, \frac{-1}{6}, \frac{1}{12}, \dots\dots\dots$



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111. Which of the following are G.P.? If they are G.P., write three more terms.

(iii) 5, 55, 555, $\dots\dots\dots$



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112. Which of the following are G.P.? If they are G.P., write three more terms.

(iv) $-2, -6, -18, \dots$



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113. Which of the following are G.P.? If they are G.P., write three more terms.

(v) $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \dots$



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114. Which of the following are G.P.? If they are G.P., write three more terms.

(vi) $3, -3^2, 3^3, \dots$



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115. Which of the following are G.P.? If they are G.P., write three more terms.

(vii) $X, 1, \frac{1}{X}, \dots$



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116. Which of the following are G.P.? If they are G.P., write three more terms.

(viii) $\frac{1}{\sqrt{2}}, -2, \frac{8}{\sqrt{2}}, \dots$



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117. Which of the following are G.P.? If they are G.P., write three more terms.

(ix) $0.4, 0.04, 0.004, \dots$



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118. Find x so that $x, x + 2, x + 6$ are consecutive terms of a geometric progression.



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119. Find the 20^{th} and n^{th} term of the G.P.

$$\frac{5}{2}, \frac{5}{4}, \frac{5}{8}, \dots$$



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120. Which term of the G.P.

$$2, 2\sqrt{2}, 4, \dots \text{ is } 128?$$



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121. In a GP the 3^{rd} term is 24 and 6^{th} term is 192.
find the 10^{th} term.



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122. For each geometric progression find the common ratio 'r', and then find a_n .

(i) $3, \frac{3}{2}, \frac{3}{4}, \frac{3}{8}, \dots\dots\dots$



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123. For each geometric progression find the common ratio 'r', and then find a_n .

(ii) 2, - 6, 18, - 54



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124. For each geometric progression find the common ratio 'r', and then find a_n .

(iii) - 1, - 3, - 9, - 27,



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125. For each geometric progression find the common ratio 'r', and then find a_n .

(ii) 2, - 6, 18, - 54



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126. Find the 10^{th} and n^{th} term of G.P. : 5, 25, 125,.....



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127. Find the indicated term of each geometric progression.

(i) $a_1 = 9, r = \frac{1}{3}$, find a_7 .



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128. Find the indicated term of each geometric progression.

(ii) $a_1 = -12, r = \frac{1}{3}$, find a_6 .



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129. Which term of the G.P.

(i) 2, 8, 32,...is 512?



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130. Which term of the G.P.

(ii) $\sqrt{3}$, 3, $3\sqrt{3}$,is 729?



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131. Which term of the G.P. $\frac{1}{3}$, $\frac{1}{9}$, $\frac{1}{27}$,

is $\frac{1}{2187}$?



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132. Find the 12^{th} term of a G.P. whose 8^{th} term is 192 and the common ratio is 2.



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133. The 4^{th} term of a geometric progression is $\frac{2}{3}$ and the seventh term is $\frac{16}{81}$. Find the geometric series.



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134. If the geometric progressions $162, 54, 18, \dots$ and $\frac{2}{81}, \frac{2}{27}, \frac{2}{9}, \dots$ have their n^{th} term equal, find the value of n .



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135. Which term of the AP : $121, 117, 113, \dots$, is the first negative term? [Hint: Find n for $a_n < 0$]



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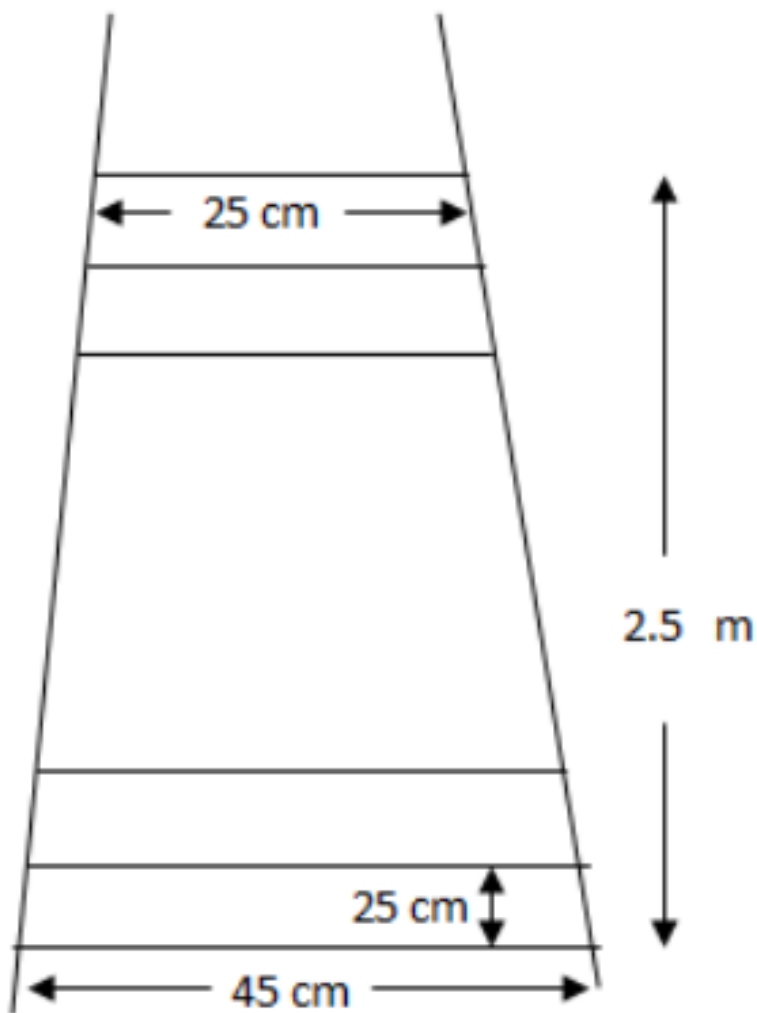
136. The sum of the third and the seventh terms of an AP is 6 and their product is 8. find the sum of first sixteen terms of the AP.



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137. A ladder has rungs 25 cm apart. The rungs decrease uniformly in length from 45 cm at the bottom to 25 cm at the top. If the top and the bottom rungs are $2\frac{1}{2}$ m apart. What is the length of the wood required for the rungs? [

Hint : Number of rungs = $\frac{250}{25} + 1$



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138. The houses of a row are numbered consecutively from 1 to 49. Show that there is a value of x such that the sum of the numbers of the houses preceding the house numbered x is equal to the sum of the numbers of the houses following it. And find this value of x . [Hint:

$$S_{x-1} = S_{49} - S_x]$$



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139. A small terrace at a football ground comprises of 15 steps each of which is 50 m long

and built of solid concrete.

Each step has a rise a $\frac{1}{4}$ m and a tread of $\frac{1}{2}$ m.

(sec Fig.). Calculate the total volume of concrete required to build the terrace.

[Hint : Volume of concrete required to build the

$$\text{first step} = \frac{1}{4} \times \frac{1}{2} \times 50m^3]$$



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140. 150 workers were engaged to finish a piece of work in a certain number of days. Four workers dropped from the work in the second day. Four

workers dropped in third day and so on. It took 8 more days to finish the work. Find the number of days in which the work was completed.



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141. A machine costs Rs. 5,00,000. if the value depreciates 15% in the first year, $13\frac{1}{2}\%$ in the second year, 12% in the third year and so on. What will be its value at the end of 10 years, when all the percentages will be applied to the original cost?



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142. Check whether -25 is a term in the progression $5, 3, 1, \dots$, or not?



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143. Find out the common ratio in the GP $2, \sqrt{2}, 4, \dots$



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144. The hand borewell driller charges Rs. 200 for the first one meter only and raises drilling charges @ 30/- for every subsequent meter.

Write a progression for the above data.



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145. In a flower garden there are 23 plants in first row, 21 plants in second row, 19 plants in 3rd row and so on. If there are 10 rows in that garden, then find the total number of plants in the last

row with the help of the formula

$$t_n = a + (n - 1)d$$



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146. Find the sum of first 200 natural numbers.



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147. If the sides of a triangle are in AP. The perimeter of the triangle is 30cm. The

difference between the longer and shorter side is 4 cm. Then find all sides of the triangle.



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148. Find the sum of all 3 digit numbers that are divisible by 4.



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149. For the following A.Ps write the first term and the common difference.

$$\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \frac{5}{4}, \dots$$



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150. For the following A.Ps write the first term and the common difference.

5,8,11,14,17,....



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151. For the following A.Ps write the first term and the common difference.

$$\frac{1}{3}, 1, \frac{5}{3}, \frac{7}{3}, \dots$$



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152. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = 6, d = -2$$



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153. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = -3, d = 4$$



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154. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = x+2y, d = -y$$



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155. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = 8, d = 5$$



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156. Which of the following are APs? If they form an AP, find the common difference and write three more terms

$$3, 5, 7, 9, \dots$$



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157. Which of the following are APs? If they form an AP, find the common difference and write three more terms

5,9,7,3,....



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158. Which of the following are APs? If they form an AP, find the common difference and write

three more terms

$$3, \frac{10}{3}, \frac{11}{3}, 4, \dots$$



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159. Which of the following are APs? If they form an AP, find the common difference and write three more terms

$$0, -3, -6, -9, -12$$



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160. Which of the following are APs? If they form an AP, find the common difference and write three more terms

$a, 4a, 7a, 10a, \dots$



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161. Fill in the blanks in the following table.

| S.No. | a | d | n | a_n |
|-------|----|---|----|-------|
| i) | 5 | 3 | 10 | - |
| ii) | -8 | 2 | - | 14 |
| iii) | 30 | - | 12 | 78 |
| iv) | - | 0 | 8 | 2.5 |



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162. Write the terms of the G.P. When the first term 'a' and the common ratio 'r' are given.

$$a = 5, r = 2$$



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163. Write the terms of the G.P. When the first term 'a' and the common ratio 'r' are given.

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



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164. Write the terms of the G.P. When the first term 'a' and the common ratio 'r' are given.

$$a = 16, r = -\frac{1}{2}$$



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165. Which of the following are GP? If they are G.P, write 3 more terms.

3,15,75,.....



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166. Which of the following are GP? If they are G.P, write 3 more terms.

$$\frac{1}{2}, \frac{1}{6}, \frac{1}{18}, \dots$$



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167. Write the first three terms of GP if

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

A. $\frac{1}{2}, \frac{1}{6}, -\frac{1}{18}$

B. $-\frac{1}{2}, -\frac{1}{6}, -\frac{1}{18}$

C. $\frac{1}{2}, -\frac{1}{6}, \frac{1}{18}$

D. $\frac{1}{2}$, $\frac{1}{6}$, $\frac{1}{18}$

Answer:



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168. Which of the following are GP? If they are G.P, write 3 more terms.

-5,-10,-20,...



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169. Which of the following are GP? If they are G.P, write 3 more terms.

-0.3,-0.03,-0.003,....



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170. For each geometric progression find the common ratio 'r' and then find a_n

$2, \frac{2}{3}, \frac{2}{9}, \frac{2}{27}, \dots$



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171. For each geometric progression find the common ratio 'r' and then find a_n

-3,-6,-12,-24,...



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172. Find the 8^{th} and n^{th} term of GP.

6,18,54,...



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173. Find the indicated term of each G.P.

$$a_1 = 8, r = \frac{1}{2}, \text{ find } a_8$$



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174. Find the indicated term of each G.P.

$$a_1 = -10, r = \frac{1}{5}, \text{ find } a_5$$



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175. If the sum of the first 25 terms of an A.P. is 16, 250 and First term is 50. Then find the 15th

term.



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176. If the sum of the first 10 terms of an A.P. is 1,200 and First term is 30. Then find the 6^{th} term.



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177. 10,30,90,270 are in G.P. Then find the 15^{th} and 20^{th} terms.



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178. 7,14,28,... are in G.P. Then find the 7^{th} and 10^{th} terms.



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179. Find y so that $y, y+2, y+3$ are consecutive terms of a geometric progression.



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180. Find z so that $z+1, z+2, z+3$ are consecutive terms of a geometric progression.



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181. If $a=3, d = 5, S_n = 1010$. Then find 'n' and a_n .



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182. If $a= 4, d= 3, S_n = 69$. Then find 'n' and a_n .



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Exercise

1. For the following A.Ps write the first term and the common difference.

$$\frac{1}{6}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \dots$$



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2. For the following A.Ps write the first term and the common difference.

$$\pi + 3, \pi + 1, \pi - 1, \pi - 3, \dots$$



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3. For the following A.Ps write the first term and the common difference.

$a-3b, a+b, a+5b, a+9b, \dots$



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4. For the following A.Ps write the first term and the common difference.

$0, -4, -8, -12, -16, \dots$



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5. For the following A.Ps write the first term and the common difference.

2,5,8,11,.....



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6. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$a = 8, d = -1$



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7. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = -1, d = 3$$



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8. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a = x + y, d = -2y$$



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9. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a=0, d = -2$$



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10. Write the first four terms of the A.P. when the first term 'a' and the common 'd' are given as follows.

$$a= 9, d = 4$$



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11. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write three more terms.

$$-1, \frac{1}{4}, \frac{3}{2}, \dots$$



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12. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write

three more terms.

0.8, 0.82, 0.84,



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13. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write three more terms.

$2\frac{1}{2}, 3\frac{3}{4}, 5, \dots$



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14. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write three more terms.

1,4,9,16,...



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15. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write three more terms.

3,5,6,8,....



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16. Which of the following are A.Ps? If they form A.P. find the common difference 'd' and write three more terms.

-5,5,-5,5,...



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17. Find the 30^{th} term of the A.P. 7,11,15,19,....



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18. Find the 10^{th} term of the A.P: -11,-9,-7,....



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19. Find the 18^{th} term and 23^{rd} term of the A.P
16,11,6,....



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20. The first term of an A.P. is -2 and the 10^{th}
term is 16. Determine the 15^{th} term.



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21. The 8^{th} term of an A.P. is 17 and the 19^{th} term is 39. Find the 25^{th} term.



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22. If m times the m^{th} term of an A.P. is equal to n times the n^{th} term, prove that the $(m + n)^{th}$ term of the A.P. is zero.



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23. Each term of an A.P. is doubled. Is the resulting sequence also an A.P.? If it is, write its first term, common difference and n^{th} term.



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24. The third term of an A.P. is 'p' and the fourth term 'q'. Find the 10^{th} term and the general term.



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25. Find the 20^{th} term and n^{th} term of the A.P.
21,16,11,....



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26. Write the first three terms defined by

$$a_n = \frac{n}{n+1}$$



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27. find the sum of the following A.Ps

7,11,15,....,12 terms, n terms.



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28. find the sum of the following A.Ps

3,5,7,...to 50 terms.



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29. find the sum of the following A.Ps

-2,4,10,...21 terms, 50 terms.



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30. find the sum of the following A.Ps

$1, \frac{1}{4}, \frac{3}{2}, 32, \dots \rightarrow 81$ terms.



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31. Find the sum of 32 terms of an A.P. whose third term is 1 and 6^{th} term is -11.



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32. Determine the sum of first 35 terms of an A.P.

if $a_2 = 2$ and $a_7 = 22$.





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33. Find the sum to 'n' terms of an A.P. whose 7^{th} term is 30 and 13^{th} term is 54.



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34. How many terms are there in an A.P. whose first and fifth terms are -14 and 2 respectively, and the sum of terms is 40?



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35. Find the sum of all natural numbers between 100 and 1000 which are multiples of 6.



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36. If the 8^{th} term of an A.P. is 31 and 15th term is 16 more than the 11th term, find the A.P.



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37. Which term of the A.P. 5, 15, 25, ... will be 130 more than its 31^{st} term?



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38. The sum of 5^{th} and 9^{th} terms of A.P. is 72 and the sum of 7th and 12th terms is 97. Find the A.P.



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39. How many multiples of 4 lie between 10 and 250?



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40. How many three digit numbers are divisible by 3?



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41. Which term of the A.P. 3,10,17,... Will be 84 more than its 13^{th} term?



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42. The 8^{th} term from the end of the AP 7,10,13, 184 is





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43. Find the 10^{th} term from the end of the A.P
8,10,12,....,126.



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44. Find the sum of all 3-digit natural numbers,
which are multiples of 11?



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45. Find the sum of all 3-digit natural numbers, which are multiples of 13?



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46. Find the sum: $25 + 28 + 31 + \dots + 100$.



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47. Find the sum of the first 25 terms of an A.P. whose n^{th} term is given by $a_n = 2 - 3n$.



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48. The first and the last terms of an A.P. are 17 and 350 respectively. If the common difference is 9, how many terms are there and what is their sum?



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49. For what value of p are $2p+1$, $13,5p-3$ are three consecutive terms of an A.P.?



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50. Find 'r' and write 3 more terms of each of the following G.Ps.

$$\frac{x}{y}, \frac{1}{x}, \frac{y}{x^3}, \dots$$



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51. Find 'r' and write 3 more terms of each of the following G.Ps.

$$5, 0.5, 0.05, \dots$$



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52. Find 'r' and write 3 more terms of each of the following G.Ps.

$$\sqrt{3}, \sqrt{6}, 2\sqrt{3}, 2\sqrt{6}, \dots\dots$$



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53. Find 'r' and write 3 more terms of each of the following G.Ps.

$$-3, 1, -\frac{1}{3}, \dots$$



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54. Find 'r' and write 3 more terms of each of the following G.Ps.

2,4,8,16,....



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55. Find 'r' and write 3 more terms of each of the following G.Ps.

$-\frac{2}{3}, -6, -54, \dots$



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56. Which of the following are G.Ps? Write 3 more terms .

3,33,333,.....



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57. Which of the following are G.Ps? Write 3 more terms .

$1, \frac{2}{3}, \frac{4}{9}, \dots$



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58. Which of the following are G.Ps? Write 3 more terms .

$$1, -a, a^2, -a^3, \dots$$



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59. Which of the following are G.Ps? Write 3 more terms .

$$4, 8, 10, 20, \dots$$



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60. Which of the following are G.Ps? Write 3 more terms .

128,-96,72,...



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61. Which of the following are G.Ps? Write 3 more terms .

$\frac{8}{27}$, $\frac{16}{81}$, $\frac{32}{243}$,



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62. Find x so that $x, x+4$ and $x+12$ are consecutive terms of a geometric progression.



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63. Find x so that $x+1, 5x-1$, and $10x+7$ are in G.P.



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64. Write three terms of G.P. when the first term 'a' and the common ratio 'r' are given.

$r = -13$ and $a = 1$



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65. Write three terms of G.P. when the first term 'a' and the common ratio 'r' are given.

$$a = 10, r = -2$$



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66. Write three terms of G.P. when the first term 'a' and the common ratio 'r' are given.

$$a = x^3, r = -x$$



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67. Write three terms of G.P. when the first term 'a' and the common ratio 'r' are given.

$$\sqrt{7}, \sqrt{21}, 3\sqrt{7}, 3\sqrt{21}$$



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68. For each geometric progression find the common ratio 'r', and then find a_n .

(ii) $2, -6, 18, -54$



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69. For each of the G.Ps , find the common ratio and then find a_n

5,10,20,40,...



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70. For each of the G.Ps , find the common ratio and then find a_n

4,2,1,.....



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71. For each of the G.Ps , find the common ratio and then find a_n

3,9,27,81,...



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72. Find the 20^{th} term and n^{th} term of the G.P.

4,12,36.... .



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73. Find the indicated term of each G.P.

$$a_1 = 1, r = 1.2, \text{ find } a_4$$



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74. Find the indicated term of each G.P.

$$a_1 = 768, r = \frac{1}{2}, \text{ find } a_6.$$



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75. Which term of the G.P.

$$2, 2\sqrt{2}, 4, \dots \text{ is } 64?$$



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76. Which term of the G.P.

5,15,45,... Is 3645?



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77. Which term of the G.P.

4,2,1...is $\frac{1}{128}$?



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78. Determine the 18^{th} term of a G.P. whose 5^{th} term is 1 and common ratio is $\frac{2}{3}$



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79. Find the value (s) of x so that $1, 3x - 2, \frac{1}{9}$ are three consecutive terms of a G.P.

A. $\frac{7}{9}, \frac{5}{9}$

B. $\frac{2}{9}, \frac{6}{9}$

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

D. $\frac{4}{9}, \frac{5}{9}$

Answer:



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80. The 5^{th} , 8^{th} and 11^{th} terms of a G.P. are p,q and s respectively. Then $q^2 = \dots\dots\dots$



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81. The first term of a G.P. is 9 and 5^{th} term is $\frac{1}{729}$? Which term of the G.P. is $\frac{1}{59049}$



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82. The 8^{th} term of a G.P. is 192 and its 11^{th} term is 1536, which term of G.P. is 6?



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83. If the seventh term of a G.P. is 27 and its 21^{st} term is 243, find its 14^{th} term.



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84. How many terms of A.P. $-6, \frac{-11}{2}, -5 \dots$ are needed to obtain a sum -25 ?

A. 10 or 25

B. 15 or 18

C. 5 or 20

D. 8 or 12

Answer:



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85. The sum of natural numbers from 1 to 100 is

A. 4050

B. 10100

C. 55

D. 5050

Answer:



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86. The sum of first 50 even numbers is

A. 1250

B. 2550

C. 1275

D. 2275

Answer:



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87. The sum of first 20 odd numbers is

A. 400

B. 210

C. 420

D. 5

Answer:



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88. If $x - 1$, $x + 3$, $3x - 1$ are in A.P., then x is equal

A. 5

B. 8

C. 420

D. 405

Answer:



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89. The numbers $-15, -11, -7, -3$, is
is

A. A.P. with $d=4$

B. A.P. with $d = -4$

C. A.P. with $d = 8$

D. G.P.

Answer:



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90. The next term of the A.P.

$\sqrt{48}, \sqrt{75}, \sqrt{108}, \sqrt{147}, \dots$ Is

A. $\sqrt{27}$

B. $\sqrt{197}$

C. $\sqrt{192}$

D. $\sqrt{243}$

Answer:



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91. Which term of the A.P. 24,21,18,... is the first negative?

A. a_{10}

B. a_9

C. a_6

D. a_{11}

Answer:



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92. Which term of the A.P. 125, 120, 115, Is the first negative?

A. 25^{th}

B. 26^{th}

C. 24^{th}

D. 27^{th}

Answer:



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93. Which term of the A.P

100 , 90, 80, Is zero?

A. 10^{th}

B. 9^{th}

C. 11^{th}

D. 12^{th}

Answer:



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94. $(a + 3d), (a + d), (a - d), \dots$ the next term of the A.P. is

A. $a+2d$

B. $a-2d$

C. $a-4d$

D. $a-3d$

Answer:



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95. The sum of 15 terms of the A.P. 4, 7, 10, Is

A. 385

B. 475

C. 375

D. 325

Answer:



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96. If $a_7 - a_3 = 32$, then the common difference of the A.P. is

A. 8

B. 6

C. 4

D. 6

Answer:



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97. $a_{28} - a_{23} = 15$, then the common difference of the A.P. is

A. 3

B. 5

C. 7

D. 15

Answer:



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98. if a, b, c are in A.P. then $b =$

A. $a+c$

B. $\frac{a+c}{2}$

C. $a-c$

D. $\frac{a - c}{2}$

Answer:



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99. The 17th term of 1.1, 2.2, 3.3, 4.4, Is

A. 18.7

B. 19.8

C. 17.6

D. 17.17

Answer:



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100. The 25^{th} term of

$-300, -290, -280, \dots$ is

A. -60

B. -80

C. 60

D. 80

Answer:



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101. How many numbers are divisible by 4 lying between 101 and 250 ?

A. 40

B. 62

C. 38

D. 37

Answer:



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102. The common ratio of the G.P.

3, 6, 12, 24, Is

A. 3

B. 2

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

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

Answer:



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103. The common ratio of the G.P. 192, 48, 12,...is

A. 4

B. 2

C. 6

D. $\frac{1}{4}$

Answer:





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104. The 103^{rd} term of $1, -1, 1, -1, \dots$ is

A. 1

B. -1

C. 0

D. -2

Answer:



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105. Which term of the G.P.

2, 6, 18, 54, is 2×3^{10} ?

A. 10^{th}

B. 11^{th}

C. 12^{th}

D. 9^{th}

Answer:



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106. If $a_7 + a_4$ of a G.P. is 343, then the common ratio is

A. 11

B. 9

C. 3

D. 7

Answer:



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107. If a, b, c are in G.P., then $b =$

A. ac

B. $\frac{a + c}{2}$

C. $a^2 c^2$

D. \sqrt{ac}

Answer:



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108. $8, x, 10$ are in G.P then $x =$

A. 7

B. 6

C. 8

D. 5

Answer:



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109. If 3, x, 11 are in A.P. , then x =

A. $\sqrt{21}$

B. 14

C. 4

D. 7

Answer:



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110. If x, xy, xy^2, xy^3, \dots Forms a G.P., then its 15^{th} term is

A. xy^{15}

B. xy^{14}

C. $x^{14}y$

D. $x^{15}y$

Answer:



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111. if $a = 3$ and $a_7 = 33$, then a_{11} is

A. 55

B. 53

C. 73

D. 63

Answer:



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112. $-20, -18, -16, \dots$ which term of this A.P. is a first positive term?

A. 10

B. 11

C. 12

D. 9

Answer:



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113. $1, -1, 1, -1, 1, -1, \dots$ up to 131 terms, then $S_{131} =$

A. 1

B. -1

C. 131

D. 130

Answer:



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114. The 10^{th} term of the AP 3,11,19,... Is

A. 73

B. 16

C. 75

D. 85

Answer:



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115. term of AP 21 , 18, 15, is -81.

A. 35

B. 16

C. 30

D. none

Answer:





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116. The *8th* term from the end of the AP 7,10,13,
..... 184 is

A. 324

B. 181

C. 163

D. 161

Answer:



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117. The n th term of $a, a + d, a + 2d, \dots$ is
.....

A. $a+(n-1)d$

B. $a-(n+1)d$

C. $a^2 - (n - 1)d$

D. $d+(n-1)a$

Answer:



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118. In the AP, first term is 4 and common difference is -1 then AP is

A. 9,3,-6...

B. 10,12,14,...

C. 5,8,16,...

D. 4,3,2,...

Answer:



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119. The AP with first term is 8 and common difference $2\frac{1}{2}$ is

A. $8, 10\frac{1}{2}, 13, \dots$

B. $8, 10, 11\frac{1}{2}$

C. $16, 15\frac{1}{2}, 10\frac{1}{2}$

D. none

Answer:



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120. In the AP $-9, -14, -19, -24, \dots$ $a_{30} - a_{20} =$
.....

A. 80

B. -60

C. 50

D. -50

Answer:



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121. The next term of the AP 51, 59 , 67 , 75 is

.....

A. 12

B. 16

C. 83

D. 38

Answer:



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122. Find the sums given below:

(iii) $-5 + (-8) + (-11) + \dots + (-230)$

A. 66

B. 76

C. 86

D. none

Answer:



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123. 15th term of the AP $x - 7, x - 2, x + 3, \dots$
is

A. $x+63$

B. $x-6$

C. $x-63$

D. $x+16$

Answer:



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124. The common ratio of the GP

4, 20, 100, 500, Is

A. 8

B. 2

C. 5

D. 9

Answer:



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125. The 16th term of 4, -4, 4, -4, Is

A. 16

B. 8

C. 4

D. -4

Answer:



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126. The common difference of AP 1, -1, -3, Is

.....

A. -2

B. 1

C. 2

D. 10

Answer:



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127. In the AP $-11, -9, -7, \dots$ $d = \dots$

A. 4

B. 3

C. -2

D. 2

Answer:



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128. In the A.P $100, 103, 106, \dots$ $d = \dots$

A. 4

B. 8

C. 6

D. none

Answer:



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129. A GP with $r = -2$ is

A. 5,-10,20,-40,....

B. 2,4,8,16

C. 3,-6,10,16

D. all

Answer:



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130. A GP with $r = -2$ is

A. 7,14,28,.....

B. 8,16,10,...

C. 12,24,19,....

D. none

Answer:



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131. 5, 10, 15, 10th term is

A. 20

B. 9-

C. 60

D. 50

Answer:



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132. 8, 16, 32,6th term is

A. 256

B. 156

C. 108

D. none

Answer:



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133. $-1, 1, -1, \dots$ 11th term is

A. 1

B. -1

C. 10

D. 9

Answer:





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134. $-8, -6, -4, \dots \dots \dots a_7 = \dots \dots \dots$

A. 1

B. 12

C. 10

D. 6

Answer:



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135. 1,2,3, sum to 10 term is

A. 55

B. 65

C. 60

D. 90

Answer:



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136. If a, b, c are in GP then $b^2 = \dots$

A. $\frac{c}{a}$

B. $\frac{a}{c}$

C. \sqrt{ac}

D. ac

Answer:



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137. In a GP $a_6 = \dots\dots\dots$

A. ar^5

B. a^5t

C. a^5t^5

D. all

Answer:



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138. Which term of G.P 2,8,32,...is 512?

A. 16

B. 5

C. 9

D. 10

Answer:



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139. $\frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \dots, a_7$

A. $\frac{1}{1827}$

B. $\frac{1}{2187}$

C. $\frac{1}{8127}$

D. none

Answer:



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140. $3, \frac{3}{2}, \frac{3}{4} \dots r =$

A. 1

B. 2

C. -1

D. none

Answer:



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141. If 2, x, 6 are in GP then $x = \dots\dots\dots$

A. $2\sqrt{3}$

B. $8\sqrt{3}$

C. $2\sqrt{2}$

D. $\sqrt{3}$

Answer:





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142. 4, 16, \square , 256,..... then $\square = \dots\dots\dots$

A. 161

B. 64

C. 62

D. 68

Answer:



Watch Video Solution

143. $1+2+3+\dots+n=\dots$

A. $\frac{n(n+1)}{2}$

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

C. $\frac{n^2+1}{2}$

D. none

Answer:



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144. Using the principle of Mathematical Induction, $\forall n \in \mathbb{N}$, prove that

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

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

B. $\frac{n(2n+1)}{4}$

C. $\frac{n(n+1)(2n+1)}{6}$

D. $\frac{(n+1)^2}{2}$

Answer:



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145. In an AP $7a_7 = 11a_{11}$ then $a_{18} = \dots\dots\dots$

A. -1

B. 0

C. 1

D. 7

Answer:



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146. AM of 24 and 16 is

A. 22

B. 19

C. 16

D. 20

Answer:



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147. If a, b, c are in AP then $2b = \dots\dots\dots$

A. $a+c$

B. $a-c$

C. $\frac{a+c}{2}$

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

Answer:



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148. The sum of first 40 positive intergers divisible by 6 is

A. 9420

B. 4920

C. 9920

D. 1290

Answer:



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149. $a_n = 9 - 5n$, $a_4 = \dots\dots\dots$

A. 30

B. 10

C. 11

D. -11

Answer:



Watch Video Solution

150. In a GP, $a_8 = 192$, $r = 2$ then $a_{12} = \dots\dots\dots$

A. 3072

B. 7032

C. 1032

D. 1100

Answer:



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151. 2, -6, 18, -54,r =

A. -3

B. 3

C. 1

D. -2

Answer:



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152. $5/2, 5/4, 5/8, \dots a_n = \dots$

A. $\frac{5}{2^{n-1}}$

B. $\frac{5}{2^n}$

C. $\frac{5}{2^{n-2}}$

D. none

Answer:





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153.

$$\frac{1}{\sqrt{2}}, -2, \frac{8}{\sqrt{2}}, \dots \dots \dots a_5 = \dots \dots \dots$$

A. $16\sqrt{2}$

B. $32\sqrt{2}$

C. $6\sqrt{2}$

D. $31\sqrt{2}$

Answer:



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154. $3, -3^2, 3^3, \dots, a_6 = \dots$

A. -729

B. 729

C. 829

D. 114

Answer:



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155. In a G.P. $a = 81$, $r = -\frac{1}{3}$, $a_3 = \dots\dots\dots$

A. -9

B. 9

C. -3

D. none

Answer:



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156. In a G.P. $25, -5, 1, -1/5, \dots\dots r = \dots\dots$

A. $-\frac{3}{5}$

B. 2

C. -1

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

Answer:



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157. S_n in A.P.=

A. $\frac{n}{2}[a + l]$

B. $\frac{n}{3} [a + l]$

C. $2n(a+l)$

D. none

Answer:



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158. In AP $a_{12} = 37, d = 3$, then $a = \dots\dots\dots$

A. 8

B. -4

C. -3

D. 4

Answer:



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159. Find $S_7 = \dots$ of GP 2, 4, 8, 16,

A. 246

B. 146

C. 126

D. 112

Answer:



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160. $-1, \frac{1}{4}, \frac{3}{2}, \dots$. Sum to 10 terms =

A. 26.5

B. 16.25

C. 36.25

D. 46.25

Answer:



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161. Find the sums given below:

(iii) $-5 + (-8) + (-11) + \dots + (-230)$

A. -8930

B. 8930

C. 8390

D. none

Answer:



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162. Find the sum of :

(i) The first 1000 positive intergers .

A. 500500

B. 50051

C. 8005

D. none

Answer:



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163. $16 + 11 + 6 + \dots \dots \dots 23 \text{ terms} = \dots \dots$

A. 119

B. -987

C. 891

D. -897

Answer:





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164. Identify the number of 3 digit number that divisible by 7.

A. 126

B. 128

C. 122

D. none

Answer:



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165. In an AP $a_1 = -4$, $a_6 = 6$ then $a_2 = \dots$

A. 3

B. 6

C. 1

D. -2

Answer:



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166. In the above problem $a_5 = \dots$

A. 4

B. 32

C. 6

D. -4

Answer:



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167. In the formula $a_n = 3.6$, $a = -18.9$, $d = 2.5$, n
=

A. 13

B. 12

C. 10

D. 20

Answer:



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168. 5, 1, -3, -7, a_{10} =

A. - 23

B. 22

C. 31

D. - 31

Answer:



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169. $\frac{1}{4}, \frac{-1}{4}, \frac{-3}{4}, \frac{-5}{4}, d = \dots\dots\dots$

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

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

C. 2

D. -1

Answer:



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170. If 4, x, 16 are in G.P. then $x = \dots\dots\dots$

A. 12

B. 16

C. 8

D. none

Answer:



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171. $1^3 + 2^3 + 3^3 + \dots + n^3 = \dots$

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

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

C. $\frac{n(n + 1)}{2}$

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

Answer:



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172. G.M. of a and b is

A. \sqrt{ab}

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

C. $\frac{a + b}{2}$

D. none

Answer:



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173. G.M. of a and $\frac{1}{a}$ is

A. -3

B. 1

C. 7

D. 8

Answer:



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174. Reciprocals of term of GP is

A. AP

B. GP

C. HP

D. none

Answer:





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175. If a, b, c are in GP then $\frac{b}{a} = \dots\dots\dots$

A. $\frac{c}{b}$

B. $\frac{b}{c}$

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

D. none

Answer:



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176. $1+1+1+\dots+n$ terms =

A. ar

B. ar^{n-1}

C. a^{n-1}

D. $\frac{a}{2}r^{n-1}$

Answer:



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177. If a, b, c are in GP then b is called

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

B. n

C. n-1

D. none

Answer:



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178. If a,b,c are in GP then b is called

A. Geometric mean

B. Arithmetic mean

C. Number

D. None

Answer:



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179. $\sum n = 10, \sum n^3 = \dots\dots\dots$

A. 100

B. 1001

C. 200

D. 80

Answer:



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180. In a series $a_n = \frac{n(n+1)}{2}$, $a_2 = \dots$

A. 41

B. 3

C. 4

D. 2

Answer:



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181. AM of 10 and 20 is

A. 12

B. 15

C. 25

D. 10

Answer:



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182. $a_n = (n - 1)(n - 2)$ then $a_2 = \dots\dots\dots$

A. 1

B. 0

C. 2

D. 3

Answer:





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183. If a, b, c are in AP then $b - a = \dots\dots\dots$

A. $c + b$

B. $a + b$

C. $c - b$

D. none

Answer:



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184. Find the values of x so that $\frac{-2}{7}$, x , $\frac{-7}{2}$ are three consecutive terms of a G.P.

A. ± 1

B. ± 2

C. ± 3

D. ± 4

Answer:



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185. GM of 5 and 125 is

A. 13

B. 16

C. 10

D. 25

Answer:



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186. S_n in A.P.=

A. $\frac{n}{2}[2a + (n - 1)d]$

B. $\frac{n}{2}[a + (n + 1) + d]$

C. $n[2a+(n-1)d]$

D. none

Answer:



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187. $a_n = \frac{1}{n + 2}, a_3 = \dots\dots\dots$

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

B. $\frac{5}{3}$

C. $\frac{3}{5}$

D. none

Answer:



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188. The n th term of a GP is $2(0.5)^{n-1}$, $r = \dots\dots\dots$

A. -2

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

C. 2

D. -1

Answer:



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189. Find out the common ratio in the GP $2, \sqrt{2}, 4, \dots$

A. $\sqrt{3}$

B. 4

C. 3

D. $\sqrt{2}$

Answer:



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190. a, b, c are in AP then $3^a, 3^b, 3^c$ are in

A. GP

B. HP

C. AP

D. none

Answer:



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191. $2, \frac{5}{2}, 3, \dots S_{25} = \dots$

A. 110

B. 180

C. 100

D. none

Answer:



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192. AM of M, P, C is

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

B. $M-P-C$

C. $(M+P+C)/3$

D. $\frac{M + P - C}{2}$

Answer:





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193. $a_n = 2^n$, $a_5 = \dots\dots$

A. 32

B. 23

C. 18

D. 13

Answer:



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194. AM of 5 and 95 is

A. 105

B. 505

C. 501

D. 50

Answer:



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195. GM of x^3 and $\frac{1}{x^3} = \dots\dots\dots$

A. -7

B. 1

C. 3

D. none

Answer:



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196.

$$n - 1, n - 2, n - 3, \dots \dots \dots a_{10} = \dots \dots \dots$$

A. $n-10$

B. $n-9$

C. $n+9$

D. $n-3$

Answer:



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197. Product of n GM's between a and b is

A. $(ab)^{n/2}$

B. $(ab)^n$

C. $\frac{a}{b}$

D. $\frac{a^n}{b}$

Answer:



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198. If $\frac{a^{n+1} + b^{n+1}}{a^n + b^n}$ is the AM of a and b then n
=

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

B. 1

C. 0

D. 4

Answer:



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199.

7, 10, 13,, $a_5 = \dots\dots\dots$

A. 19

B. 100

C. 131

D. 12

Answer:



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200.

22, 32, 42, , $a_7 = \dots\dots\dots$

A. 81

B. 92

C. 69

D. 82

Answer:



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201. 1,4,7,10,....., $d = \dots\dots\dots$

A. 13

B. 3

C. 4

D. none

Answer:



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202. In AP $a_p = q$, $a_q = p$ then $a_{p+q} = \dots\dots\dots$

A. $q-p$

B. $p-q$

C. 0

D. -1

Answer:



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203. Which term of AP $7+4+1+\dots$ is -56 ?

A. 22

B. 20

C. 18

D. 19

Answer:



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204. $1+6+4+9+7+12+\dots\dots$ to 40 terms

A. 20

B. 60

C. 90

D. none

Answer:





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205. AM of $x^2 + y^2$ and $x^2 - y^2$ is

A. $\frac{x^2}{2}$

B. x^2

C. x

D. $2x$

Answer:



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206. a,b,c are in AP then $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in

A. HP

B. GP

C. AP

D. None

Answer:



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207. If there are n AM's between a and b then $d =$

.....

A. $\frac{b - a}{n + 1}$

B. $\frac{b}{n + 1}$

C. $\frac{a - b}{n}$

D. $\frac{b}{n + 2}$

Answer:



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208. 10,100,1000,.....,r=

A. 12

B. 9

C. 8

D. 10

Answer:



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209.

$$1 + \frac{1}{2} + \frac{1}{2^2} + \dots, r = \dots$$

A. 3

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

C. 2

D. -1

Answer:



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210. 3,6,12,.....r =

A. 1

B. 10

C. 3

D. none

Answer:



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211.

$a, a^2, a^3, \dots, r = \dots$

A. a

B. a^2

C. a^3

D. none

Answer:



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212. a,b,c are in AP then $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in

A. GP

B. AP

C. HP

D. none

Answer:



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213. GM of x, y, z is

A. xyz^3

B. $\sqrt[3]{xyz}$

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

D. $\frac{x + y + z}{3}$

Answer:



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214. The n th term if a GP = $a_n = ar^{n-1}$ here 'r' means

A. common difference

B. common ratio

C. first term

D. radius

Answer:



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215. The 'n' th term of an A.P. is $a_n = 3 + 2n$ then the common difference is

A. 2

B. 3

C. 4

D. 5

Answer:



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216. The common difference of the AP

$x - y, x, x + y$ is

A. x

B. y

C. $-x$

D. $-y$

Answer:



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217. The common difference of the AP
 $2a - b, 4a - 3b, 6a - 5b$ is

A. $2a-2b$

B. $a-b$

C. $2a-b$

D. $4a-3b$

Answer:



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218. In a GP $a_1 = 20$ and $a_4 = 540$ then $r =$

.....

A. 27

B. 3

C. 520

D. 18

Answer:



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219. Formula for sum of 'n' terms in an AP =

.....

$$\text{A. } \sum_n = \frac{n(n+1)}{2}$$

$$\text{B. } \sum_{n^2} = \frac{n^2(n+1)(n+2)}{6}$$

$$\text{C. } S_n = \frac{n}{2} [2a + (n-1)d] \quad \text{or}$$

$$S_n = \frac{n}{2} [a + l]$$

$$\text{D. } a_n = a + (n-1)d$$

Answer:



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220. In an A.P the 3rd term = 5 and 7th term = 9

then the common difference=....

A. 1

B. 2

C. 3

D. 4

Answer:



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221. In the formula of n^{th} term of term of a Geometric Progression $a_n = a \cdot r^{n-1}$, r denotes

.....

A. n^{th} term

B. number of terms

C. common ratio

D. first term

Answer:



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222. Which of the following is a GP with a common ratio $r = \sqrt{2}$.

A. $\sqrt{2}, \sqrt{6}, \sqrt{18}$

B. $\sqrt{3}, \sqrt{6}, \sqrt{12}$

C. $\sqrt{5}, \sqrt{15}, \sqrt{45}$

D. $\sqrt{7}, \sqrt{21}, \sqrt{63}$

Answer:



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223. Which term of the G.P. 3, 9, 27, Is 243?

A. 7

B. 8

C. 6

D. 5

Answer:



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224. The series $(n-1), (n-2), (n-3), \dots$ is a type of

A. AP

B. GP

C. may be both

D. none

Answer:



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225. If $\log a, \log b, \log c$ are in A.P. then a, b, c are

A. A.P.

B. G.P.

C. Both A.P. and G.P.

D. neither A.P. nor G.P.

Answer:



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226. $\pi + 2, \pi, \pi - 2, \pi - 4, \dots$ write the first term and the common difference.



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227. If the 5^{th} and 10^{th} terms of an A.P. are -6 and -21 respectively. Which term of this A.P. is zero?



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228. If the sum of the first n terms of an A.P. is $3n + n^2$, what is the first term? What is the 2^{nd} term, 3^{rd} term, 10^{th} term and the n^{th} terms.



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229. Find 'x' so that $5x-3, 8x$ and $15x+3$ are in G.P.
and taking x as positive integer.



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230. If the geometric progressions
 $256, 64, 16, \dots$ and $\frac{1}{16}, \frac{1}{4}, 1, \dots$ Have their n^{th}
terms equal, find the value of n?



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231. $2a, 3a, 4a, \dots$ is in AP then $d =$

A. $4a$

B. $2a$

C. $3a$

D. a

Answer:



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232. a^3, a^4, a^5, \dots Are in G.P then $r =$

A. a^2

B. a^3

C. a^4

D. a

Answer:



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233. G.M of P,Q,R is.....

A. Pr^3

B. $\sqrt[3]{PQR}$

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

D. $\frac{P + Q + R}{3}$

Answer:



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234. A.M of $P^2 + Q^2$ and $P^2 - Q^2$ is....

A. $\frac{P^2}{2}$

B. P^2

C. P

D. 2P

Answer:



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235. P,Q,R are in A.P then $\frac{1}{P}, \frac{1}{Q}, \frac{1}{R}$ are in

A. G.P

B. A.P

C. HP

D. None

Answer:



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236. In A.P $a_{15} = 30$ and $d=2$ Then $a=...$

A. 3

B. 4

C. 2

D. 5

Answer:





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237. $\sum n = 5$. Then $\sum n^3 =$

A. 25

B. 125

C. 625

D. 10

Answer:



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238. A.M of 20 and 40 is.....

A. 15

B. 30

C. 40

D. 10

Answer:



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239. If $a_n = \frac{n(n+1)}{2}$ $a_4 = \dots$

A. 10

B. 8

C. 15

D. 6

Answer:



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240. 5, 1, -3, -7, a_{10} =

A. - 23

B. 22

C. 31

D. - 31

Answer:



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241. $a_n = (n - 1)(n - 2)$ then $a_5 = \dots$

A. 13

B. 8

C. 14

D. 12

Answer:



Watch Video Solution

242. Which term of AP $7+4+1+\dots$ is -56 ?

A. 22

B. 20

C. 18

D. 19

Answer:



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243. In a G.P, 25,125,625..... Then $r=$

A. 6

B. 10

C. 5

D. 25

Answer:



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244. 10,5,0....are in A.P then $d=$

A. 5

B. -5

C. 10

D. 0

Answer:





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245. If P,Q,R are in A.P then $Q-P=.....$

A. $R+Q$

B. $P+Q$

C. $R-Q$

D. None

Answer:



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246. Using the principle of Mathematical Induction, $\forall n \in \mathbb{N}$, prove that

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$$

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

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

C. $\frac{n(n+1)}{2}$

D. $\frac{n(n+1)(2n+1)}{6}$

Answer:



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247. 1,2,3.....sum of 20 term is

A. 55

B. 220

C. 210

D. 90

Answer:



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248. In AP $a=4$ and $a_4 = 16$. Then a_{15} is.....

A. 60

B. 70

C. 80

D. 90

Answer:



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249. If $3, x, 11$ are in A.P. , then $x =$

A. 4

B. $\sqrt{31}$

C. 7

D. 5

Answer:



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250. The 50^{th} term of 10,50,90...is

A. 1970

B. 1980

C. 2000

D. 1985

Answer:



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251. If p, pq, pq^2, pq^3, \dots forms of G.P. Then its 20^{th} term is

A. pq^{18}

B. pq^{17}

C. pq^{21}

D. pq^{19}

Answer:



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252. The common ratio of 4,16,64.....

A. 4

B. 16

C. 2

D. 8

Answer:



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253. The next term of G.P. in 3,9,27,...is

A. 81

B. 90

C. 270

D. 40

Answer:



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254. The next term of A.P. in 5,10,15,...is

A. 25

B. 16

C. 20

D. 19

Answer:





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255. 1,-1,1,-1,...upto 100 terms then what is 50^{th} term?

A. -1

B. 1

C. 0

D. 50

Answer:



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256. Find the number of terms in the following
A.P.

7, 13, 19,205



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257. If $l = 205$ and A.P. 7,13,19,..... . Then find the no,
of terms in A.P.



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258. Which term of the AP 5,10,15,... Is 90.



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259. Find the 20^{th} term from the AP 3,6,9,....



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