Arithmetic Progression for TCS NQT

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Types of Progression

Arithmetic Progression

- **Finding the nth term**
- **Sum of n terms**
- **Arithmetic Mean**
- **Average of an AP**
- **Finding common difference when two terms are given**

Geometric Progression

- **Finding the nth term**
- **Sum of n terms**
- **Geometric Mean**
- **Finding common difference when two terms are given**

Harmonic Progression

- **Finding the nth term**
- **Sum of n terms**
- **Harmonic Mean**

Relationship among AM GM HM

1. If a times the ath term of an AP is equal to b times the bth term. find the (a + b)th term

a. 0

b. $a^2 - b^2$

c. a – b

d. 1

2. A number 20 is divided into 4 parts that are in arithmetic progression such that the product of the first and 4th is to the product of the second and third is 2:3. find the largest part

a. 12
b. 4
c. 8
d. 9

3. Kushal Drew a rectangular grid of 529 cells arranged in 23 rows and 23 columns and filled each cell with the number. The numbers with which he filled each cell was such that the numbers of each Row taken from left to right formed an arithmetic series and the numbers of each column taken from top to bottom also formed an arithmetic series. The 7th and 17th numbers of the fifth row were 47 and 63 respectively. The 7th and the 17th terms of the 15th row were 53 and 77 respectively. What is the sum of all the numbers in the Grid ?

a) 32798 b) 65596 c) 52900 d) NONE

1	2	3
2	3	4
3	4	5

4. An arithmetic progression P consists of n terms. From the progression 3 different progressions P1 P2 and P3 are created such that P1 is obtained by 1st 4th 7^{th} ….. Terms, P2 has the 2nd 5th 8^{th}… terms of P and P3 has the 3rd 6th 9^{th}…. terms of P. it is found that of P1 P2 and P3, two progressions have the property that there average is itself a term of the original progression P which of the following can be a possible value of n

a) 20 b) 26 c) 36 d) both a) & b)

5. The sum of the first and the fifth term of an AP is 26 and the product of the second and term by the fourth term is 160. find the sum of the first seven terms of this AP

a) 110 b) 114 c) 112 d) 116

6. The sum of third & ninth terms of an AP is 10. find a possible sum of first 11 terms of this AP.

a) 44 b) 55 c) 66 d) 48

7. If in any decreasing AP, sum of all its terms except for the first term, is equal to -36, the sum of all its terms except for the last term, is 0 and the difference of tenth and 6^{th} term is equal to -16, then what would be first term of this series ?

a) 16 b) 20 c) -16 d) -20

8. The sum of all the terms of AP having 10 terms except for the first term is 99 & except for the 6^{th} term, 89. find the 3^{rd} term of the progression if the sum of the first and the fifth term is equal to 10 ?

a) 15 b) 5 c) 8 d) 10

9. A number of saplings are lying at a place by the side of a straight road. They are to be planted in a straight line at a distance interval of 10 meters between two consecutive saplings. Ragini the country's greatest Forester can carry only one sapling at a time and has to move back to the original point to get the next sapling in this manner she covers a total distance of 1.32 KM. how many saplings does she plant in the process if she ends at the starting point?

a) 15 b) 14 c) 13 d) 12

10.The sum of series 5x8 + 8x11 + 11x14 upto n terms will be ?

a) $(n+1)[3(n+1)^2 + 6(n+1) + 1] - 10$
b) $(n+1)[3(n+1)^2 + 6(n+1) + 1] + 10$
c) $(n+1)[3(n+1) + 6(n+1)^2 + 1] - 10$
d) $(n+1)[3(n+1) + 6(n+1)^2 + 1] + 10$

Geometric Progression for TCS NQT

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1. After striking a floor, a rubber ball rebounds (7/8)th of the height from which it has fallen. Find the total distance that it travels before coming to rest, if it is gently dropped from a height of 420 m ?

a) 2940
b) 6300
c) 1080
d) 3360

2. An equilateral triangle is drawn by joining the midpoints of the sides of another equilateral triangle. a third equilateral triangle is drawn inside the second one joining the midpoints of the sides of the second equilateral triangle and the process continuous infinitely. find the sum of the perimeters of all the equilateral Triangles if the side of the larger equilateral triangle is 24 units.

a) 288 units
b) 72 units
c) 36 units
d) 144 units

3. The sum of the first two terms of an infinite geometric series is 18. Also each term of the series is 7 times the sum of all the terms of that follow. Find the first term and the common ratio of the series respectively

a) 16, 1/8
b) 15, 1/5
c) 12, 1/2
d) 8, 1/16

4. Determine the first term of the geometric progression the sum of whose first term and third term is 40 and the sum of the second term and four term is 80

a) 12
b) 16
c) 8
d) 4

5. The sum of an infinite GP whose common ratio is numerically less than 1 is 32 and the sum of the first two terms is 24. what will be the third term

a) 2
b) 16
c) 8
d) 4

6. If a,b,c are in GP then log a, log b and log c are in:

a) AP
b) GP
c) HP
d) None

7. What will be the value of $x^{1/2} \cdot x^{1/4} \cdot x^{1/8}$..... To infinity :

a) x^2
b) x
c) $x^{3/2}$
d) x^3

8. A GP consists of 500 terms. Sum of the terms occupying the odd places is P1 and the sum of the terms occupying the even places is P2 find the common ratio :

a) P2/P1
b) P1/P2
c) P2 + P1/P2
d) P1 + P1/P2

9. The sum of the first 10 terms of the geometric progression is S1 and the sum of the next 10 terms (11^{th} to 20^{th}) is S2 find the common ratio :

a) $(S1/S2)^{1/10}$
b) $-(S1/S2)^{1/10}$
c) $(S1/S2)^{1/5}$
d) $\pm\sqrt{(S2/S1)}$

10. A number of squares are described whose perimeters are in GP. Then their sides will be in :

a) AP
b) GP
c) HP
d) Nothing can be said