The Brigade School - Revision Test

Total points 9/10

Std: 10 Mathematics Arithmetic Progression

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Answer the following Questions: 9 of 10 points

Question 1: (10 Marks)

✗ a) How many terms are there in the A.P. 203, 210, 217, ..., 497? [3] 2/3

tn = a+(n-1)d
497=203+(n-1)7
294/7=n-1
42=n-1
n=42

Thus, the A.P. has 42 terms.

Feedback

a = 203, d = 210 - 203 = 7 and tn = 497
tn = a + (n - 1)d
497 = 203 + (n-1) x 7 ---------- (1m)
497 - 203 = (n-1) x 7
294 / 7 = n - 1 ---------- (1m)
42 = n-1
therefor n = 43
There are 43 terms in the given AP ---------- (1m)

✓ b) Find the sum of First 14 terms of the A.P. 24, 21, 18, ... [3] 3/3

S=(n/2)[2a+(n-1)d]
S=(14/2)[(2 x 24)+(14-1)x-3]
S=7[(48 + 13 x -3)]
S=7(48 - 39)
S=7 x 9
S = 63

Thus, the sum is 63.

Feedback

n = 14, a = 24 and d = 21 - 24 = -3
S n = n/2 [2 a + (n-1)d]
S 14 = 14/2 [2 x 24 + (14-1) x -3] ----------(1 m)
= 7 [48 + - 39] ----------(1 m)
= 7 x 9
S 14 = 63
Sum of first 14 terms of the given A.P. is 63 ---------- (1 m)

✓ c) Which term of the A.P. 21, 24, 27, ... is 36 more than its Eighth term? 4/4
[4]

8th term is,
tn=a+(n-1)d
=21+(8-1) x 3
= 21 + 7 x 3
= 21 + 21
= 42

Now, 42 + 36 = 78

tn = a+(n - 1) x d
78 = 21+(n-1) x 3
(78 - 21)/3 = n-1
19= n-1
n = 20

Thus, it is 20.

Feedback

a = 21, d = 24 - 21 = 3
given that, t n = t 8 + 36
ie, a + (n - 1)d = a + 7 d + 36 ----------(1 m)
21 + (n - 1) x 3 = 21 + 7 x 3 + 36 ----------(1 m)
(n - 1) x 3 = 21 + 21 + 36 - 21
n - 1 = 57/3 ----------(1 m)
n = 19 + 1 = 20
20th term of the given A.P. is 36 more than it's 8th term ----------(1 m)