Wipro Solved Placemnet Papres Set 1
Alpingi.com | Alpingi.com | Alpingi.com | Alpingi.com | Alpingi.com |Alpingi.com

Question 1

In an A.P., if the sum of first X terms is Y and the sum of first Y terms is X then what will be sum of (X+Y) terms?

a) 2(X+Y) b) (X+Y) c) -(X+Y) d) -(2X+Y)

Answer : c) -(X+Y).

Solution :

We know that, sum of first n-terms of an A.P. with first term a and common difference d is S(n) = n/2 (2a+(n-1)d).
Given that, sum of first X terms = Y
i.e., S(X) = X/2 (2a + (X-1)d) = Y
X(2a + (X-1)d) = 2Y....(1)

And, sum of first Y terms = X
i.e., S(Y) = Y/2 (2a + (Y-1)d) = X
Y(2a + (Y-1)d) = 2X ....(2)

Subtracting, (1) and (2), we get,
2X - 2Y = Y(2a + (Y-1)d) - X(2a + (X-1)d)
2X - 2Y = Y2a + Y(Y-1)d - X2a - X(X-1)d
2(X - Y) = (Y - X)(2a) + (dY2) - Yd - (dX2) + Xd
-2(Y - X) = (Y - X) (2a) - (Y-X)d - d(X2 - Y2)
-2(Y - X) = (Y - X) (2a - d) - d(X2 - Y2)
-2(Y - X) = (Y - X) (2a - d) - d(X-Y)(X+Y)
-2(Y - X) = (Y - X) (2a - d) + d(Y-X)(X+Y)
-2 = (2a-d) + d(X+Y)
-2 = 2a + d(X+Y-1)....(3)

We have to find the sum of X+Y terms.
i.e., S(X+Y) = [(X+Y) / 2] x (2a + (X+Y-1))d
Sub. eqn (3) in above eqn, we have,
S(X+Y) = [(X + Y) / 2] x (-2) = -(X + Y)
Hence, the required answer is -(X + Y).

Question 2

In an A.P., if the sum of first X terms is Z(X2), the sum of first Y terms is Z(Y2) and X is not equal to Y, then which of the following equals the sum of first Z terms of the A.P.?

a) Z3 b) (X + Y)Z2 c) (X - Y)Z2 d) Z2

Answer : a) Z2.

Solution :

Given that, sum of first X terms = Z(X2)
i.e., S(X) = X/2 (2a + (X-1)d) = Z(X2)
(2a + (X-1)d) = 2XZ
2a + Xd - d = 2ZX....(1)

And, sum of first Y terms = Z(Y2)
i.e., S(Y) = Y/2 (2a + (Y-1)d) = Z(Y2)
(2a + (Y-1)d) = 2ZY
2a + Yd - d = 2ZY....(2)

Subtracting (1) and (2), we get,
Xd - Yd = 2ZX - 2ZY
(X - Y)d = 2(X - Y)Z
d = 2Z....(3)

Sub. d value in eqn (1), we have
(2a + (X - 1)2Z) = 2XZ
2a + 2XZ - 2Z = 2XZ
2a = 2Z
a = Z...(4)

We have to find the sum of first Z terms, i.e., S(Z) = Z/2 (2a + (Z-1)d).
Substitute a and d values in above eqn,
S(Z) = Z/2 (2Z + (Z-1) 2Z) = Z(Z + (Z-1)Z) = Z2 + Z3 - Z2 = Z3.

Question 3

If S1, S2 and S3 are sums of first n terms of three A.P's with common difference 1, 2, and 3 respectively and the first term of each A.P. is 1, then which of the following relation is true?

(i) S3 - S1 = n(n+1)
(ii) 2(S1 + S2) = n(3n-1)
(iii) S1 + S3 = 2n2

a) (i)&(ii) only b) (ii)&(iii) only c) (iii) only d)(i),(ii)&(iii).

Answer : c) (iii) only

Solution :

Given that, the first term of each A.P. is 1 and the common difference are 1, 2 and 3.
Since S1 is the sum of first n terms of the first A.P., S1 = n/2 (2a + (n-1)d) = n/2 (2x1 + (n-1)1)
S1 = n/2 (2 + (n-1)1)
S1 = n/2 (n+1)....(1)

Since S2 is the sum of first n terms of the second A.P., S2 = n/2 (2a + (n-1)d) = n/2 (2x1 + (n-1)2)
S2 = n/2 (2 + (n-1)2) = n/2 (2n)
S2 = n2....(2)

Since S3 is the sum of first n terms of the third A.P., S3 = n/2 (2a + (n-1)d) = n/2 (2x1 + (n-1)3)
S3 = n/2 (3n-1)....(3)

Now, we have to find the given relations S3 - S1, 2(S1 + S2) and S1 + S3.
S3 - S1 = n/2 (3n-1) - n/2 (n+1)
= n/2 [3n - 1 - n - 1]
= n/2 (2n-2) = n(n-1)
Therefore, (i) is not true.

S1 + S2 = n/2 (n+1)+ n2 = [n (n+1) + 2n2]/2 = n(3n+1)/2
2(S1 + S2) = n (3n + 1)
Therefore, (ii) is not true.

S1 + S3 = n/2 (3n-1) + n/2 (n+1) = n/2 (3n - 1 + n + 1) = 2n2
Therefore, (iii) is true.

Hence, the answer is option c.