11.9.5.3

EE23BTECH11062 - V MANAS

Question:

Let the sum of $n, 2n, 3n$ terms of an AP be S_1, S_2 and S_3, respectively, show that $S_3 = 3(S_2 - S_1)$

Solution:

Variable	Description
x(0)	First term of AP
d	common difference in the AP
n	number of terms in AP
y(n)	sum of n terms of the AP

TABLE I
VARIABLES USED

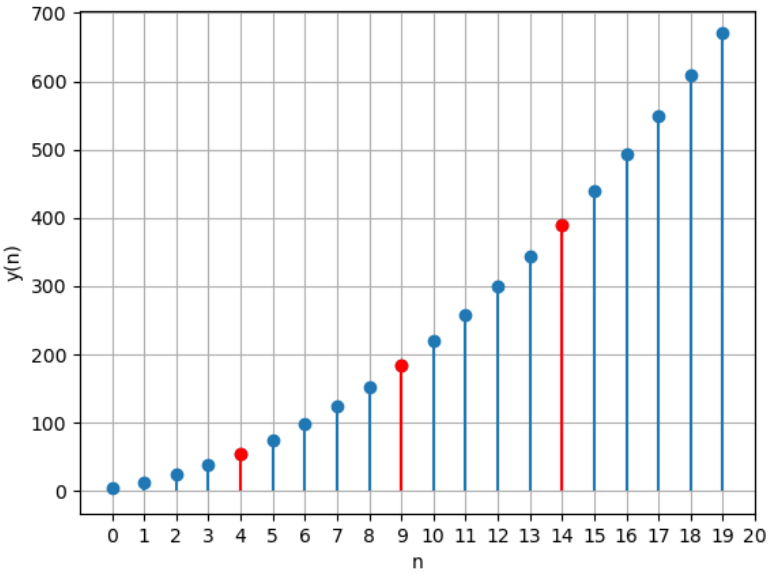

Fig. 1. Verification plot for the AP[y(n)=$\frac{n+1}{2}(2(5)+n(3))u(n)$]

By equation(**??**)

$$y(n) = \frac{n+1}{2}(2x(0) + nd)u(n) \quad (1)$$

$$y(2n) = \frac{2n+1}{2}(2x(0) + 2nd)u(n) \quad (2)$$

$$y(3n) = \frac{3n+1}{2}(2x(0) + 3nd)u(n) \quad (3)$$

$$3(y(2n) - y(n)) = \frac{3n+1}{2}(2x(0) + 3nd)u(n) \quad (4)$$