

Question

Which term of the arithmetic progression (AP): 3, 8, 13, 18, ... is 78?

Solution

Parameters	Value	Description
$x(0)$	3	Initial Term
d	5	Common Difference
$x(k)$	78	Target Term
k	?	Target Term Number

TABLE 0

PARAMETERS FOR THE ARITHMETIC PROGRESSION

$$x(n) = (x(0) + (n)d) u(n) \quad (1)$$

$$x(n) = (3 + (n)5) u(n) \quad (2)$$

$$78 = 3 + (k)5 \quad (3)$$

$$k = 15 \quad (4)$$

$$X(z) = \frac{3 + 2z^{-1}}{(1 - z^{-1})^2} \quad |z| > 1 \quad (5)$$

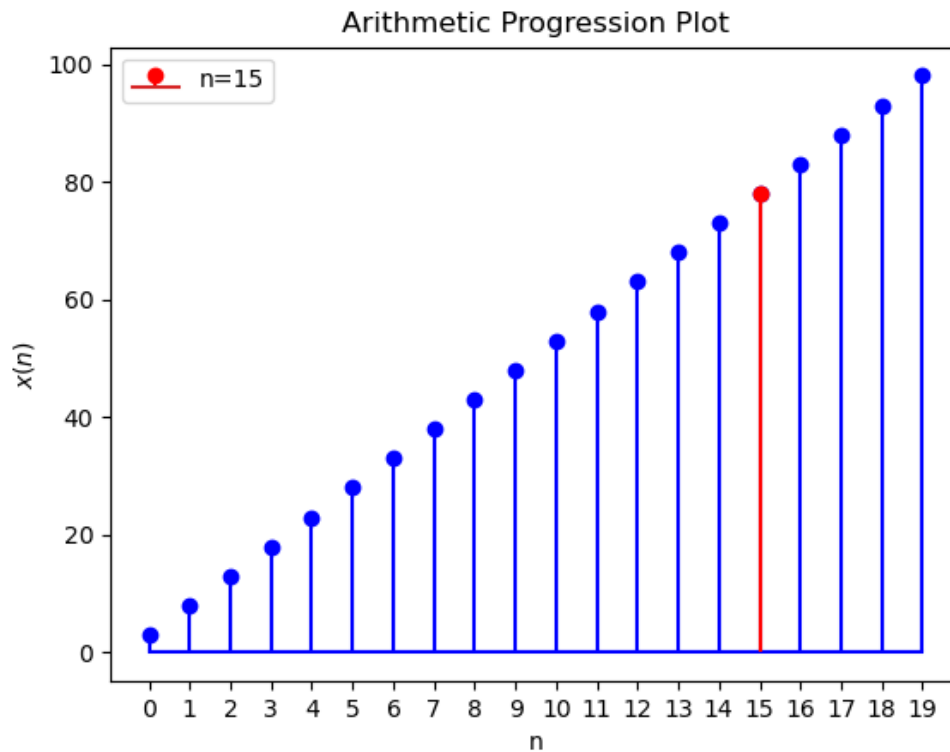


Fig. 0. Arithmetic Progression Plot