

Assignment

EE23BTECH11001 - Aashna Sahu

Q: Check whether -150 is a term of the AP: 11, 8, 5, 2,

Solution: Let n th term of given AP be $x(n)$

Given:

First term, $x(0) = 11$ and Common difference, $d = -3$

$$x(n) = x(0) + nd \quad (1)$$

$$n = \frac{x(n) - x(0)}{d} \quad (2)$$

For $n \in N$

$$x(n) - x(0) \equiv 0 \pmod{d} \quad (3)$$

On substituting values

$$-161 \equiv 0 \pmod{-3} \quad (4)$$

As $n \notin N$

Thus -150 is not a term of the given AP.

$$x(n) = (11 - 3n) \times u(n) \quad (5)$$

$$X(z) = \frac{11}{1 - z^{-1}} - \frac{3z^{-1}}{(1 - z^{-1})^2} \quad \text{ROC: } |z| > 1 \quad (6)$$

Variable	Description	Value
$x(0)$	First term of AP	11
d	Common difference	-3
$x(n)$	General term of given AP	None

TABLE 0: Input parameters

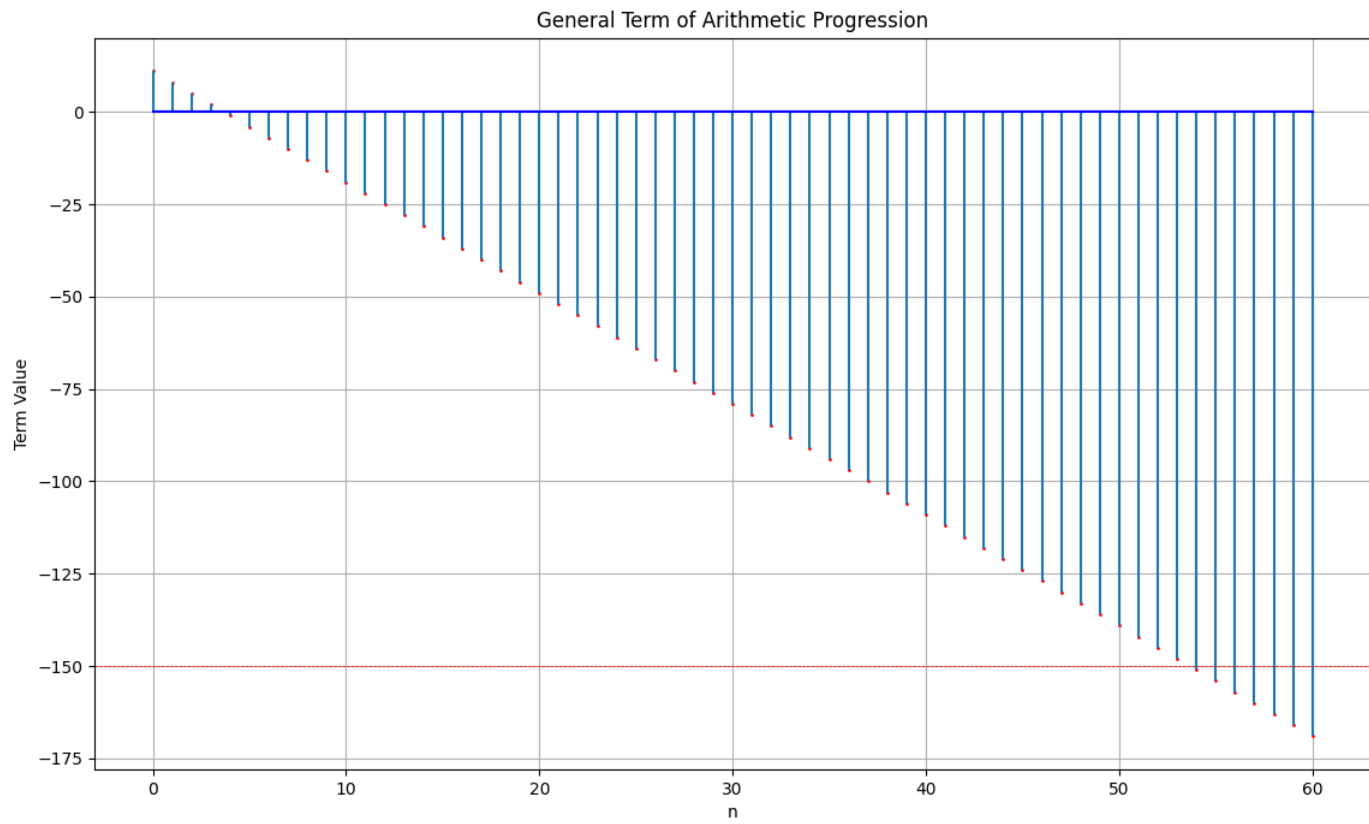


Fig. 0: Representation of $x(n)$

