

NCERT 10.5.2 17Q

EE23BTECH11012 - Chavan Dinesh*

Question: Find the 20th term from the last term of the AP: 3, 8, 13.....253.

Solution:

As the 20th term is considered from last,

| Parameter | Description | Value |
|-----------|-----------------------|-------------------|
| $x(0)$ | first term | 253 |
| d | common difference | $3 - 8 = -5$ |
| $x(n)$ | $(n + 1)^{th}$ term | $(x(0) + nd)u(n)$ |
| $u(n)$ | unit step function | |
| $x(n)$ | 20 th term | 158 |

TABLE 1: Input table

From equation (??) and (??): Z-Transform of $x(n)$:

$$X(z) = \frac{253}{1 - z^{-1}} + \frac{-5z^{-1}}{(1 - z^{-1})^2}; \{z \in \mathbb{C} : |z| > 1\}$$

(1)

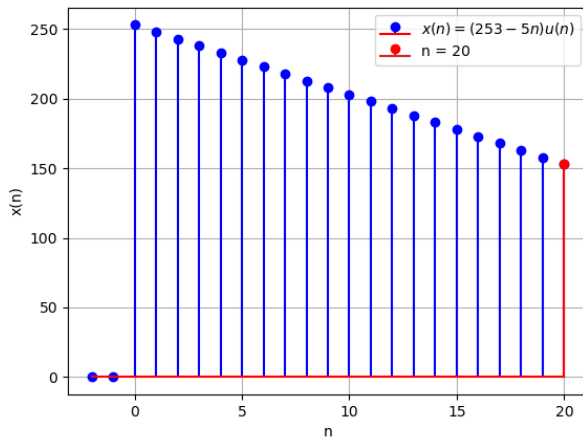


Fig. 1