

# NCERT Discrete 11.9.1 Q7

EE23BTECH11061 - SWATHI DEEPIKA\*

**Question:** Find the indicated terms in the sequence whose  $n$ th terms is  $a(n) = 4n - 3$ . Find  $a(17)$  and  $a(24)$ .

**Solution:** In the question, following information is provided:

Symbol	Value	Description
$x(n)$	$4n - 3$	The $n$ th term of the sequence
$x(17)$	?	17th term
$x(24)$	?	24th term

TABLE I  
PARAMETERS

$$x(n) = (4n - 3)u(n). \quad (1)$$

$$x(17) = 4 \times 16 - 3 = 61 \quad (2)$$

$$x(24) = 4 \times 23 - 3 = 89 \quad (3)$$

$$X(z) = \sum_{n=-\infty}^{\infty} x[n] \cdot z^{-n} \quad (4)$$

From (??) we get,

$$X(z) = 4 \frac{z^{-1}}{(1 - z^{-1})^2} - 3 \frac{1}{1 - z^{-1}} \quad (5)$$

$$\text{ROC: } |z| > 1 \quad (6)$$

The plot between  $x(n)$  and  $n$  is :

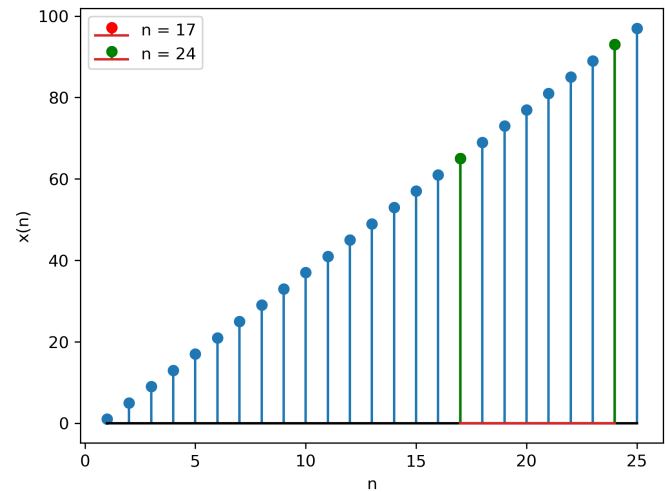


Fig. 1.  $x(n)$  vs  $n$