NCERT Discrete 11.9.1 Q7

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

Solution: In the question, following information is provided:

Symbol	Value	Description
$x(n)$	$(4n + 1)u(n)$	The nth term of the sequence
$x(16)$	?	17th term
$x(23)$	?	24th term

TABLE I
PARAMETERS

$$a(17) = x(16) = 4 \times 16 + 1 = 65 \qquad (1)$$

$$a(24) = x(23) = 4 \times 23 + 1 = 93 \qquad (2)$$

Using Z-Transform,

$$X(z) = 4\frac{z^{-1}}{(1 - z^{-1})^2} + \frac{1}{1 - z^{-1}} \quad |z| > 1 \qquad (3)$$
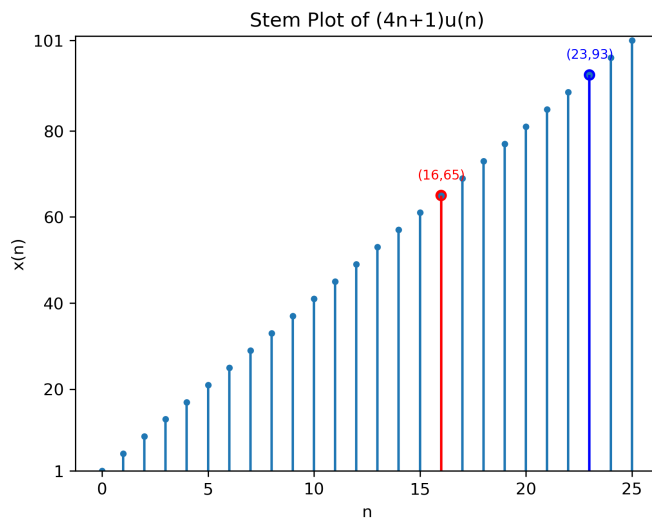

Fig. 1. $x(n)$ vs n