NCERT Discrete 11.9.3 -26

EE23BTECH11057 - Shakunaveti Sai Sri Ram Varun

Question: Insert two numbers between 3 and 81 so that the resulting sequence is G.P.

Solution:

n^{th} term of a GP is $x(0)\,r^n u(n)$.

Parameter	Description	Value
$x(0)$	First term of G.P.	3
r	common ratio of G.P.	r

TABLE I
INPUT VALUES

1) given,

$$x(0) = 3 \tag{1}$$

$$x(0)\,r^3 = 81 \tag{2}$$

$$\implies r = 3 \tag{3}$$

$\therefore$ Required numbers are 9 and 27.

2)

$$x(n) = 3^{n+1}u(n) \tag{4}$$

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

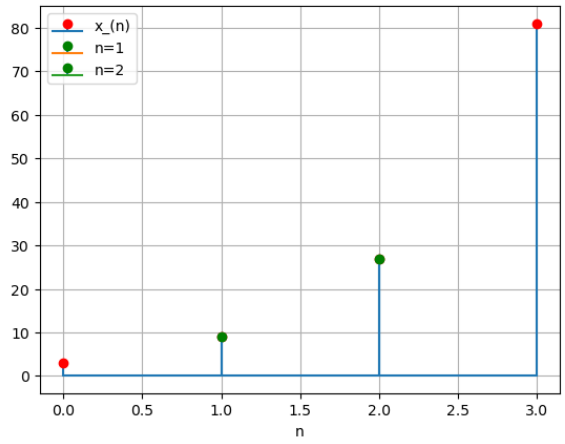

Fig. 1. Graph of $x(n)$