

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 $ar^n u(n)$.

Parameter	Description	Value
a	First term of G.P.	3
r	common ratio of G.P.	r

TABLE I
INPUT VALUES

1) given,

$$a = 3 \quad (1)$$

$$ar^3 = 81 \quad (2)$$

$$\Rightarrow r = 3 \quad (3)$$

\therefore Required numbers are 9 and 27.

2)

$$x(n) = ar^n u(n) \quad (4)$$

$$X(z) = \frac{a}{1 - rz^{-1}} \quad |z| > |r| \quad (5)$$

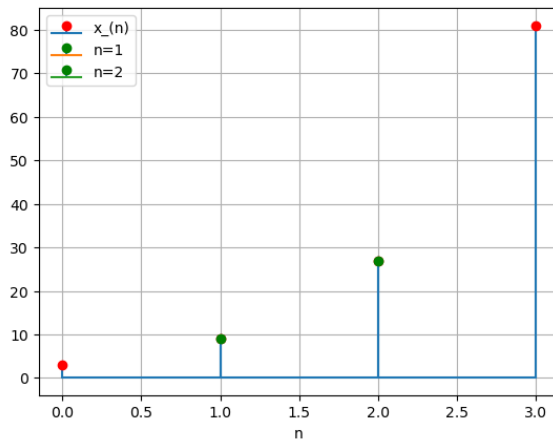


Fig. 1. Graph of $x(n]$