

NCERT Discrete 11.9.3 -26

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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	Sub-question	Description	Value
$x_i(0)$	$x_1(0)$	1 st term of 1 st A.P.	63
	$x_2(0)$	1 st term of 2 nd A.P.	3
d_i	d_1	Common difference of 1 st A.P.	2
	d_2	Common difference of 2 nd A.P.	7

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)

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

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

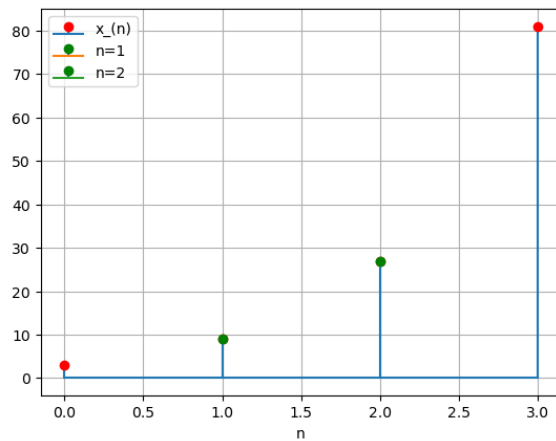


Fig. 1. Graph of $x(n)$