

Assignment-2

EE:1205 Signals and Systems
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I. QUESTION:

What will Rs 500 amounts to in 10 years after its deposit in a bank which pays annual interest rate of 10% compounded annually?

II. SOLUTION

	Principal	Interest	Amount
1 st Year	500	$\frac{10}{100} \times 500 = 50$	$500 + 50 = 550$
2 nd Year	550	$\frac{10}{100} \times 550 = 55$	$550 + 55 = 605$
3 rd Year	605	$\frac{10}{100} \times 605 = 60.5$	$605 + 60.5 = 665.5$

TABLE 1
GP TABLE

From above table:

The series is 550, 605, 665.5...

Parameter	Value	Description
$x(0)$	550	First term of GP
r	1.1	Common ratio of GP
n	9	Number of terms
$x(n)$	$x(0)r^n u(n)$	n^{th} term of GP
$x(9)$	$550(1.1)^9$	10 th term of GP

TABLE 2
PARAMETER TABLE

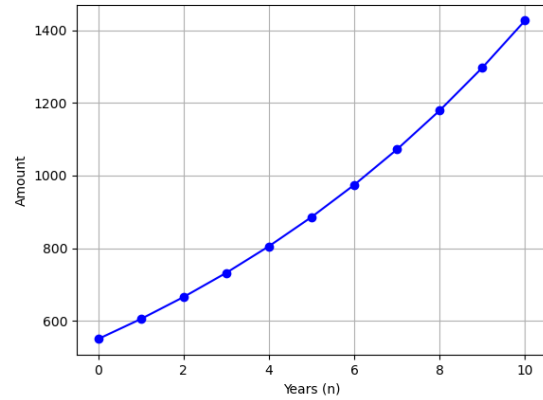


Fig. 0. Plot of $x(n) = 550(1.1)^n$

From Table 2:

The Z-transform of a sequence $x(n)$ is given by:

$$X(Z) = \frac{550}{1 - (1.1)z^{-1}}; |z| > 1.1 \quad (1)$$