Assignment-2

EE:1205 Signals and Systems
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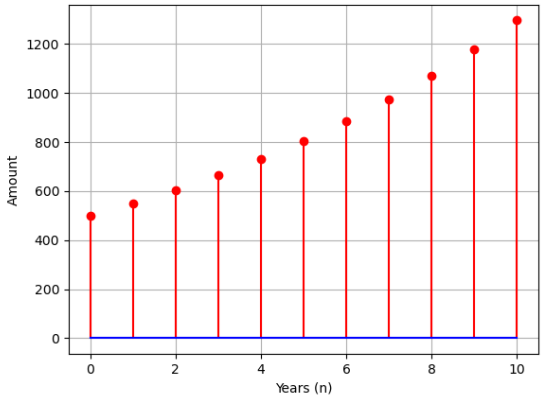

Fig. 0. Plot of $x(n) = 500(1.1)^n$

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

Parameter	Value	Description
$x(0)$	500	Principal amount before first year
r	1.1	Common ratio of GP
n	10	Number of years
$x(10)$	$500(1.1)^{10} = 1296.87$	Amount after 10 years

TABLE 1
Parameter Table

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

$$x(n) = 500(1.1)^n u(n) \tag{1}$$

$$X(Z) = \frac{500}{1-(1.1)z^{-1}}; |z| > 1.1 \tag{2}$$