Discrete Assignment-11.9.1-11

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Problem Statement

Write the first five terms in the sequence:

$$\begin{aligned} a_0 &= 3 \\ a_n - 1 &= 3a_{n-2} + 2 \quad \text{for } n > 2 \end{aligned}$$

Solution

Table 1: Input Parameters: First Term and General Formula

Term	**Value**
a_0	3
a_{n-1}	$3a_{n-2} + 2$ for $n > 2$

Let's find the first 5 terms of the sequence:

$$a_1 = 3a_0 + 2 = 3 \times 3 + 2 = 11 \tag{1}$$
$$a_2 = 3a_1 + 2 = 3 \times 11 + 2 = 35 \tag{2}$$
$$a_3 = 3a_2 + 2 = 3 \times 35 + 2 = 107 \tag{3}$$
$$a_4 = 3a_3 + 2 = 3 \times 107 + 2 = 323 \tag{4}$$
$$a_5 = 3a_4 + 2 = 3 \times 323 + 2 = 971 \tag{5}$$

So, the next 5 terms of the sequence are $11, 35, 107, 323, 971$.