1. Is the sequence $\{a_n\}$ a solution of the $a_n = -3a_{n-1} + 6a_{n-2}$ if $a_n = (-3)^n$.

2. Show that the sequence $\{a_n\}$ is a solution of the recurrence relation $a_n = 2a_{n-1} - a_{n-2}$ if $a_n = n^2-3$.

3. Describe each sequence recursively. Include initial conditions and assume that sequences begin with a_1.

    a.   1, 101, 10101, 1010101, ….

    b. $a_n = 1 + 2 + 3 + ... + n$.

    c.   *a_n = the number of subsets of a set of size n.*

4. Find the solution for the following recurrence relation:

$$T(1) = 1$$
$$T(n) = T(n\text{-}1) + 3 \text{ for } n \geq 2$$

5. Find the solution for the following recurrence relation:

$$a_n = 7a_{n-1} - 6a_{n-2}, \ a_0 = -1, \ a_1 = 4.$$