Problem 1. Find a closed form solution for
\[ a_0 = 1, \]
\[ a_1 = -3, \]
\[ a_n = 4a_{n-1} - 3a_{n-2} \]

Problem 2. Find the general solution for
\[ a_n = 3a_{n-1} - 4a_{n-2}. \]

Problem 3. Suppose
\[ a_n = n2^n + Cn + D \]
for all \( n \), and
\[ a_n = 4a_{n-1} - 4a_{n-2} + 2n - 8 \]
for \( n \geq 2 \). What are \( C \) and \( D \)?

Problem 4. Suppose
\[ a_n = A3^n + Bn3^n + Cn^23^n. \]
If
\[ a_0 = 1, \quad a_1 = 12 \quad \text{and} \quad a_2 = 99 \]
then what are \( A \), \( B \) and \( C \)?