Activity: Fibonacci-Type Sequences

1. Given $a_{n+1} = 3a_n - 2a_{n-1}$, $a_0 = 2$, $a_1 = 7$ find the closed form of $a_n$

2. Given $a_{n+1} = 2a_n + 3a_{n-1}$, $a_0 = 0$, $a_1 = 4$ find the closed form of $a_n$

3. 0, 1, 1, 7, 13, 55, ...
   a. Find the recursive form of $a_n$ (hint: it’s in the form $a_{n+1} = a_n + (\ ?)a_{n-1}$)

   b. Find the closed form of $a_n$

4. 1, 1, 5, 13, 41, 121, ...
   a. Find the recursive form of $a_n$ (hint: it’s in the form $a_{n+1} = (\ ?)a_n + (\ ?)a_{n-1}$)

   b. Find $\lambda_1$ & $\lambda_2$

   c. What would you do to find the closed form of $a_n$?