Solve each of the following recurrence relations. Show all your work. In each case, evaluate the values of $a_n$ for at least values up through $a_4$, in both ways: (1) by using the recurrence relation, and (2) by evaluating the expression you get for $a_n$ after solving the recurrence relation.

1. 

\[
\begin{align*}
  a_0 &= 1 \\
  a_n &= 5a_{n-1} + 3
\end{align*}
\]

2. 

\[
\begin{align*}
  a_0 &= 1 \\
  a_1 &= 2 \\
  a_n &= 4a_{n-1} - 4a_{n-2} + 3
\end{align*}
\]

3. 

\[
\begin{align*}
  a_0 &= 1 \\
  a_1 &= 2 \\
  a_2 &= 3 \\
  a_n &= 6a_{n-1} + 6a_{n-3} - 11a_{n-2}
\end{align*}
\]

4. 

\[
\begin{align*}
  a_0 &= 1 \\
  a_1 &= 2 \\
  a_2 &= 3 \\
  a_n &= 6a_{n-1} - 12a_{n-2} + 8a_{n-3}
\end{align*}
\]