1. Solve \( s_n = 5s_{n-1} + 3 \cdot 2^n; s_0 = 1 \).

2. Assuming Concatenate halts, prove by strong induction on the length of the list \( s \) that the algorithm \( Q \) halts.

\[
\text{List } Q(\text{List } s) \\
\text{if the length of the list is less than or equal 1} \\
\text{return } s \\
\text{else let } k \text{ be an element of } s \text{ and form three lists} \\
\text{s1 is the list of elements of } s \text{ that are less than } k \\
\text{s2 is the list with just } k \\
\text{s3 is the list of elements of } s \text{ that are greater than } k \\
\text{return Concatenate( } Q(s1), s2, Q(s3) )
\]