1. Give a recursive definition of the set of strings over \{a, b\} which contain at least one b and have an even number of a’s before the first b.

   Let the language be L.
   
   Basis: \( b \in L \).
   
   Recursive Step: If \( u \in L \) then \( a^2u \in L \), \( ua \in L \) and \( ub \in L \).
   
   Closure: Every \( w \in L \) can be obtained from the basis elements by a finite number of applications of the recursive step.