1. For each of the following languages, assume the underlying alphabet is \{0,1\}. Decide whether each language is regular, and prove your answer.

   (a) The set of all strings beginning with a nonempty string of the form \(ww\).

   (b) The set of all strings containing a nonempty substring of the form \(ww\).

   (c) The set of all strings beginning with a string \(w\) of length at least 3 such that \(w = w^R\).

2. Give CFGs generating each of the following languages, and prove your answers.

   (a) The set of all strings over \{0,1\} that are not of the form \(ww\).

   (b) The set of all strings over \{0,1\} with exactly twice as many 0s as 1s.