Chapter 1.4 Practice

For each of the following languages over the alphabet $\Sigma = \{0, 1\}$, give a regular expression that describes that language.

1. {w | w ends with 001001}
2. {w | w contains substring 001}
3. {w | w is all strings except 001}
4. {w | w is all strings containing two 0s followed by a 1 (It does not have to be consecutive, just in that order.)}
5. {w | w has only two 0s and has at least one 1}
6. {w | w where every 0 is followed by at least two 1s}
7. {w | w has an even length OR have length divisible by 3 and consist of only 1s}

Draw the state diagram for an NFA accepting the language in #7.