1. What is the difference between 10* and (10)*? Give a string accepted by the first and not the second and vice versa.

2. Write a regular expression that accepts any string on \{0, 1\}* NOT ending with 0.

3. Construct an NFA for the regular expression 1* + 01.

4. Determine whether 1011 belongs to each of the following regular sets.
   (a) 10*1*
   (b) 0*(10 + 11)*
   (c) 1(01)*1*
   (d) 1*01(0 + 1)
   (e) (10)*(11)*
   (f) 1(00)*(11)*
   (g) (10)*1011
   (h) (1 + 00)(01 + 0)1*

5. Write regular expressions for the following using \( \Sigma = \{0, 1\} \).
   (a) Set of strings of one or more 0’s followed by a 1.
   (b) The set of strings of two or more symbols followed by three or more zeroes.
   (c) The set of strings that do not contain the substring 11.
   (d) The set of strings which have an even number of 0’s.

6. Consider the following two regular expressions over \( \Sigma = \{a, b\} \):
   \( R1 = a^*b + (b^*a)^* \)
   \( R2 = b^*ab^* \)
   (a) Find a string that is in R1 but not in R2.
   (b) Find a string that is in R2 but not in R1.
   (c) Find a string that is in both R1 and R2.
   (d) Find a string that is in neither R1 nor R2.