For the alphabet \{0, 1\}, give REs for each language:

1. All strings containing exactly two 0s

\[1^*01^*01^*\]

2. All strings containing as least two 0s

\[(0 + 1)^*0(0 + 1)^*0(0 + 1)^*\]

3. All strings containing 00 as substring

\[(0 + 1)^*00(0 + 1)^*\]

4. All strings NOT containing 00 as substring

Can break such a string before each instance of 1; each resultant piece is either 1 or 10, apart from the first piece which might be 0. So answer is: \((0 + \varepsilon)(1 + 10)^*\)