Regular expressions

1. Write a regular expression for the following sets of binary strings. Use only the basic operations: () | * .

a) All binary strings

b) All binary strings except empty string

c) Begins with 1, ends with 1

d) Ends with 00

e) Contains at least three 1's

2. Describe in words what the following regular expressions mean:

a) `(0|1)*1010(0|1)*`

b) `a*b*c*`

c) `aa*bb*cc*`

3. Find all strings in the following regular expressions of length less than four.

a) `(1)(1|0)*`

b) `(a|b)*b`

4. Give some examples of strings that match and do not match the following regular expressions:

regular expression	matches	does not match
`[A-Z]{3,4}`		
`[a-z0-9]{3,}`		
`[a-z']+\s[a-z']+`		
`[aeiou]..`		
`[^A-Za-z]+`		
`(super)?(cool|dumb|evil)`		
`[0-9]{5}-[0-9]{4}`		