1- Find the language of the REs

- a + ba1

(L := {w ∈ {a, b} ∗ | w consist only of 'a' or 'ab'})

- a\* + b2

(L := {w ∈ {a, b} ∗ | w consist of zero or more 'a's or only 'b'})

- a\* + b\*3

(L := {w ∈ {a, b} ∗ | w consist of zero or more 'a's or consist of zero or more 'b's})

4- ab\*

(L := {w ∈ {a, b} ∗ | w start with 'a' follows by zero or more 'b's})

5 - (ab)\*

(L := {w ∈ {a, b} ∗ | w consist of zero or more 'ab's})

- (a + b)\*6

(L := {w ∈ {a, b} ∗ | w consist of any number of 'a's and any number of 'b's})

- abb\*7

(L := {w ∈ {a, b} ∗ | w start with 'a' follows by one or more 'b's})

- a\*b\*8

(L := {w ∈ {a, b} ∗ | w start with zero or more 'a's follows by zero or more 'b's})

- a(ba)\*b9

(L := {w ∈ {a, b} ∗ | w start with 'a' follows by zero or more 'ba's and end with 'b'})

\*(b + aaa)- 10

(L := {w ∈ {a, b} ∗ | w consist of zero or more 'b's and substrings of 'a' that divisible by 3})

11- aba+bab

(L := {w ∈ {a, b} ∗ | w consist only of 'aba' or 'bab')

2- Give regular expressions that describe the following languages

- L := {w ∈ {a, b} ∗ | w has aba as a substring}1

(a + b)\*aba(a + b)\*

- L := {w ∈ {a} ∗ | |w| is odd}2

(aa)\*a

- L := {w ∈ {0, 1} ∗ | w does not contain 00 as a substring}3

(E + 0 + 1)(10 + 11)\*

4- L := {w ∈ {a, b} ∗ | w has even number of a's and b's}

(aa + bb)\*

5- L := {w ∈ {a, b} ∗ | |w| divisible by 3}

((a + b)(a + b)(a + b))\*

- L := {w ∈ {a, b, c} ∗ | w does not contain a, b, or c}6

ϵ) empty language)

7- L := {w ∈ {a, b}∗ | the substring ab occurs exactly twice in w, but not at the end}