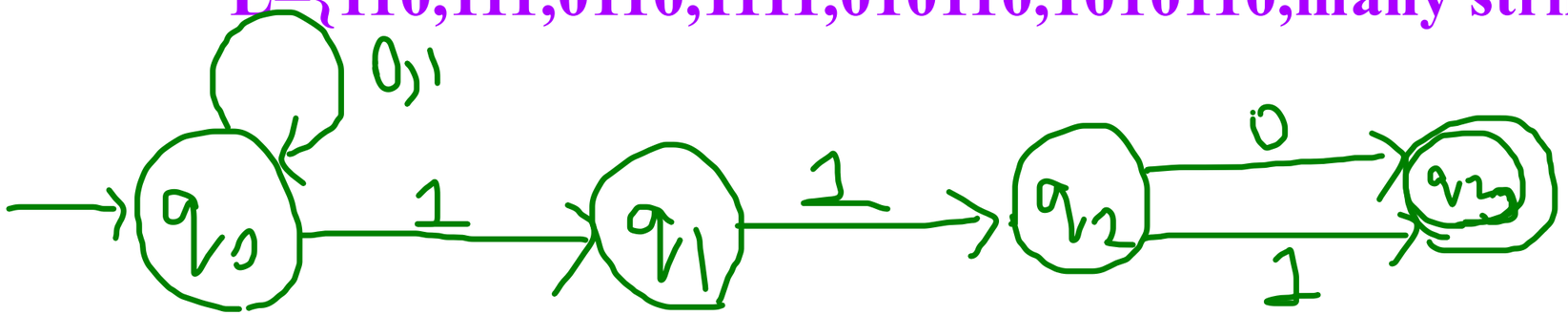
12) Regular expression for language accepting all strings whose second and third bit from right is 1 always over {0,1}

$(0+1)^* 1 1 (0+1)$

3 2 1 single

L={110,111,0110,1111,010110,1010110,many string like this.....}



11) Regular expression for language accepting all strings whose second bit from right is 0 and first bit from left is 1 always over {0,1}

12) Regular expression for language accepting all strings whose second and third bit from right is 1 always over {0,1}

1st

1

0000000
1111111
1010101

2nd

0

1 bit

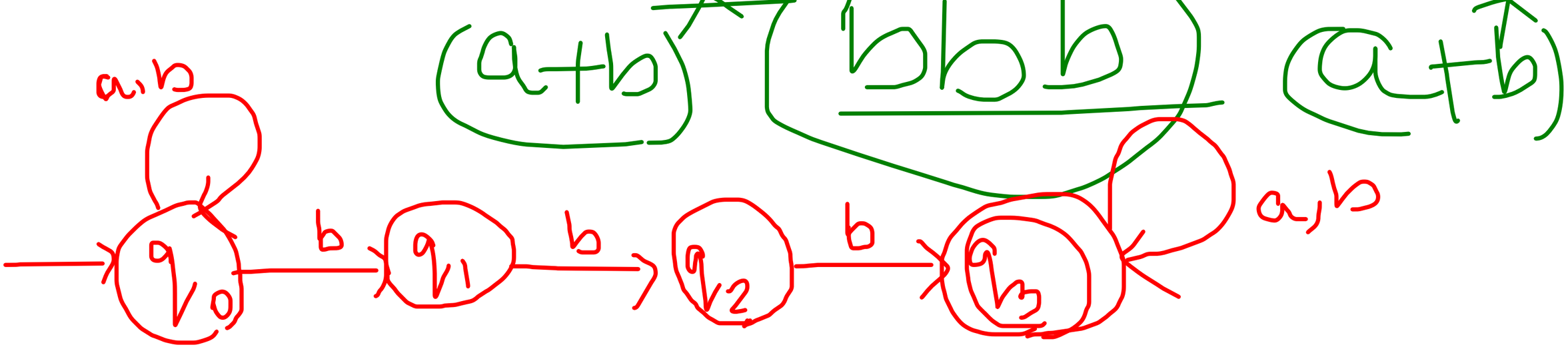
0+1

$1\ (0+1)^*\ 0\ (0+1)$

9) Set of all strings over {a,b} with 3 consecutive b's

$\Sigma = \{a, b\}$

bbb ✓



13) The set of strings over {0,1} that have at most one 1.

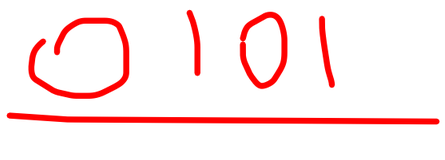
14) Give regular expressions for the following languages on $\sum=\{a,b,c\}$

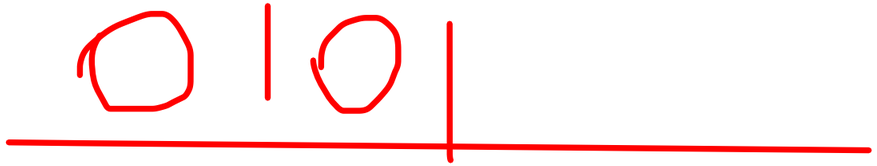
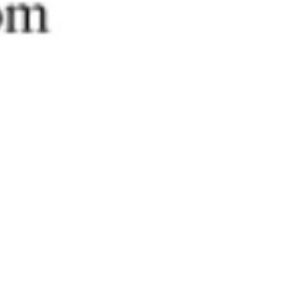
All strings containing exactly one a.

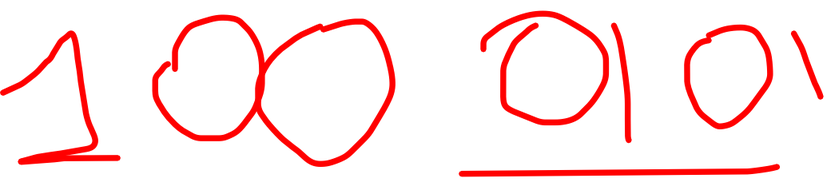
15) Give regular expressions for the following languages on $\sum=\{a,b,c\}$

All strings containing no more than three a's.

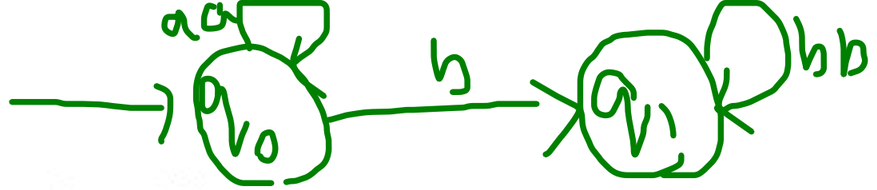
9) Set of all strings over {a,b}with 3 consecutive b's
10) Reg exp for the language that accepts all strings in which 'a' appears tripled over the set Σ ={a}
11) Regular expression for language accepting all strings whose second bit from right is 0 and first bit from left is 1 always over {0,1}
12) Regular expression for language accepting all strings whose second and third bit from right is 1 always over {0,1}

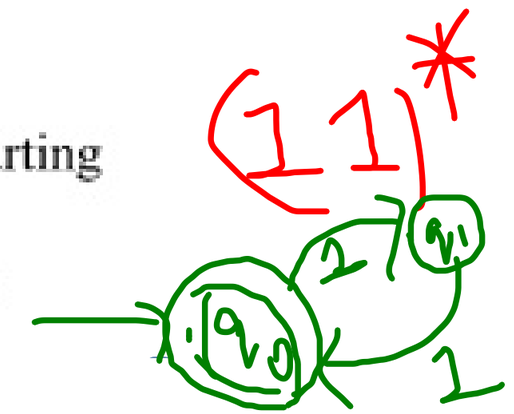



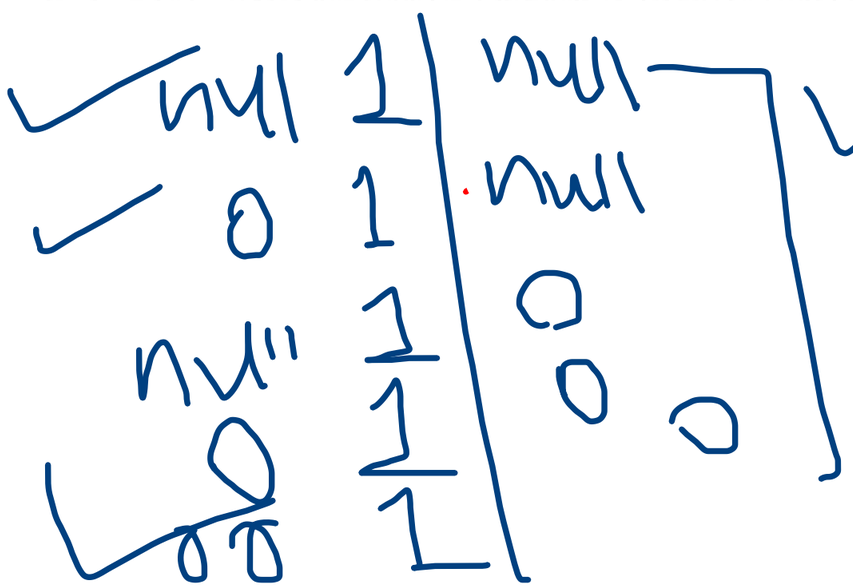



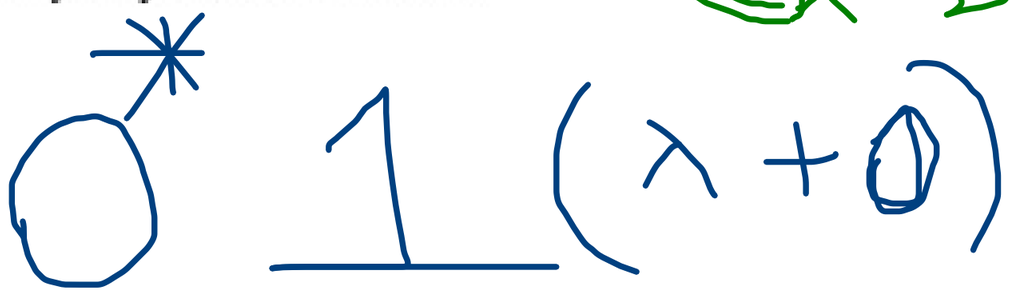



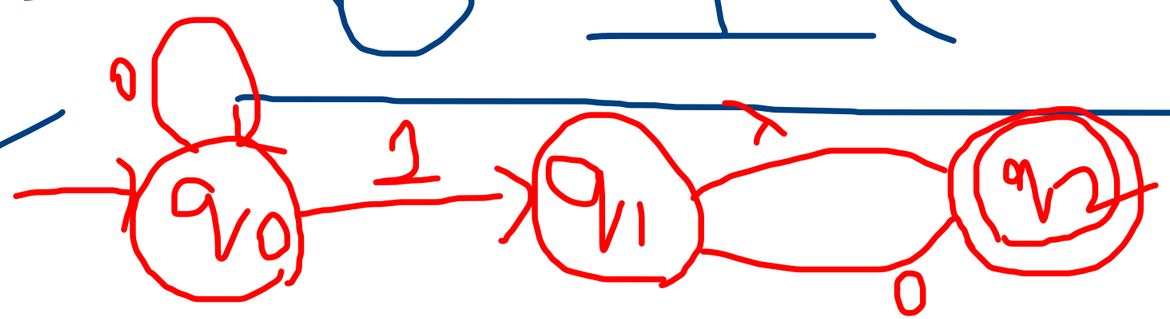
1) L = { 0, 1, 10, 100, 1000, 10000, … }
2) Set of strings of a's and b's ending with the string abb
3) Set of strings consisting of even number of a's followed by odd number of b's
4) Set consisting of even number of 1's including empty string,
5) L = {1, 01, 10, 010, 0010, …}
6) Write the regular expression for the language accepting all the string which are starting with 1 and ending with 0, over $\sum = \{0, 1\}$.
7) Write the regular expression for the language accepting all the string in which any number of a's is followed by any number of b's is followed by any number of c's.
8) All strings over {0,1} with the substring '0101'











8) All strings over {0,1} with the substring '0101'

L={0101,
0000101,
000101000,
1110101,
111010111,
..... many}

start middle end

$(0+1)^*$ 0101 $(0+1)^*$

7) Write the regular expression for the language accepting all the string in which any number of a's is followed by any number of b's is followed by any number of c's.

Any = includes null

null a, aa, aaa. . .

null b, bb, bbb. . . ——

$a^* b^* c^*$

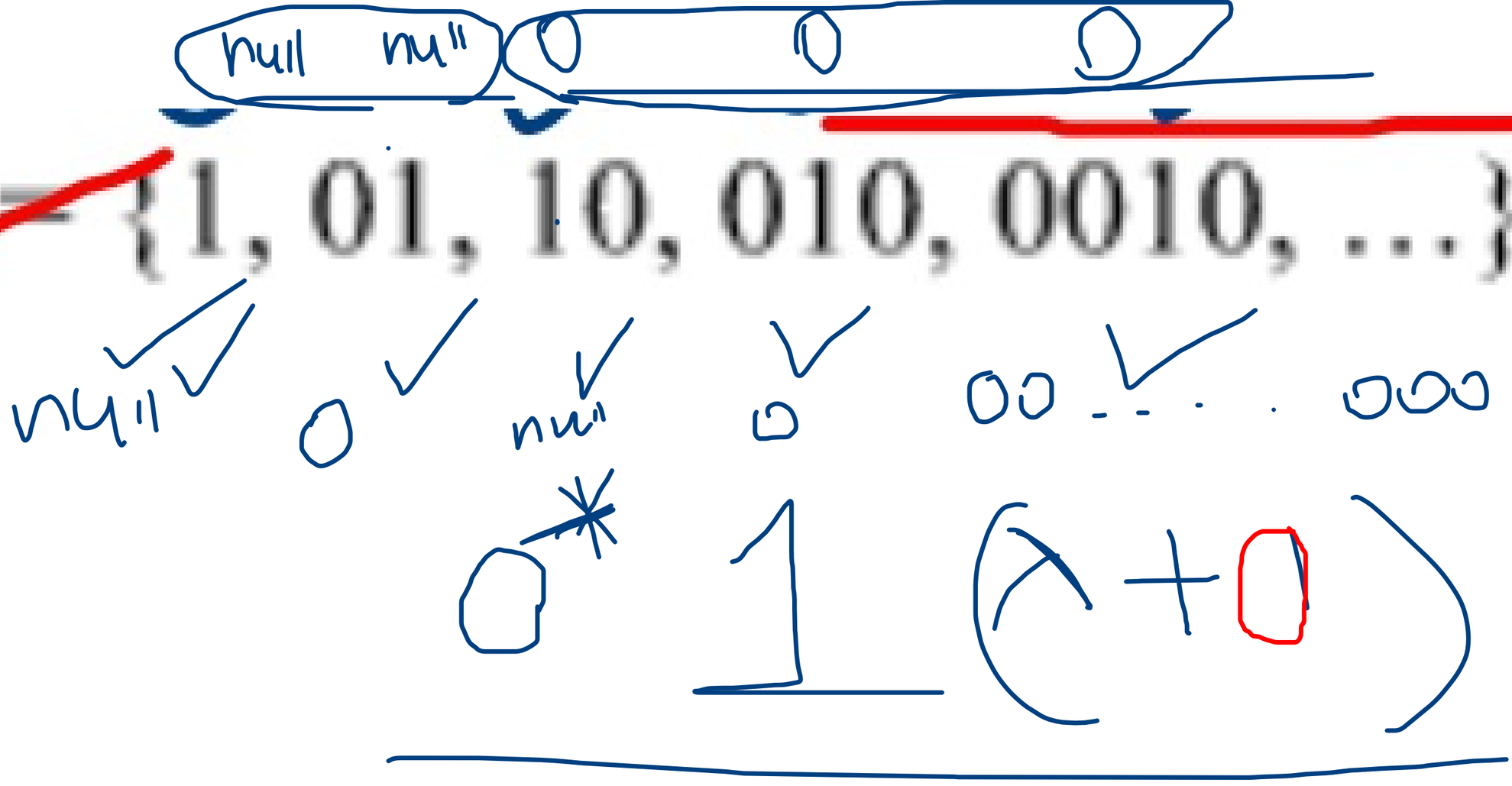
null, c, cc, ccc, . . .

6) Write the regular expression for the language accepting all the string which are starting with 1 and ending with 0, over $\sum = \{0, 1\}$.

$1(0+1)^*0$

L={10,
100,
110,
10000,
1111110,
101010,
..... many }

$$L = \{1, 01, 10, 010, 0010, \ldots\}$$



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5) L = {1, 01, 10, 010, 0010, ...}

1) $1\,0^*$

Ans – 2

$\Sigma = \{a, b\}$

$(0+)^*$

$(a+b)^*$

4) $(11)^*$

$(a+b)^*abb$

$(aa)^* b (bb)^*$

odd b's

aabbb

$b(bb)^*$

odd

b

b

odd

fm

b

null

bb

bbbbb

bbbbbb

$b(bb)^*$

$bb^* = b^+$

$b^+ \cup \varepsilon = b^*$

b

bbb

$bbbbb\ldots\ldots$

$a(aa)^*$

$b\ b\ b\ b\ b\ b$

even

$b^* \cup \varepsilon = \text{even}$