1 ex) $(0+1+\varepsilon)\cdot(01+\varepsilon)(0+1+\varepsilon)(0+1+\varepsilon)$

$\varepsilon, 0, 1$ 3

$00, 01, 10, 11$ 4

$000, 001, 010, 011, 100, 101, 110, 111$ 9

$0000, 0001, 0010, 0011, 0100, 0101, 0110, 0111,$
$1000, 1001, 1010, 1011, 1100, 1101, 1110, 1111$

16

$20 + 12 = 32$ d) 32

2 ex) $(aba)^* = ?$

a) (aba (baba)* b) + ε
b) (ab (abab)* ab) + ε
c) (a (ba)* b) + ε
d) (ab)*

ε

a) aba ✓
$ababa$ ✓

$ab \in (ab\,ab)^*$
$\Rightarrow$ ✗

d) $ab^{\varepsilon}ab$ ✓
$ab(ba)^*ab$ ✓

$a(b)^*b$
$ab \in (ba)^*$
$\Rightarrow \varepsilon$

a) b)

$L \cap L' = \Sigma^* - L$

$1(01)^*$

$\Sigma = \{0, 1\}$

$1(01)^*$

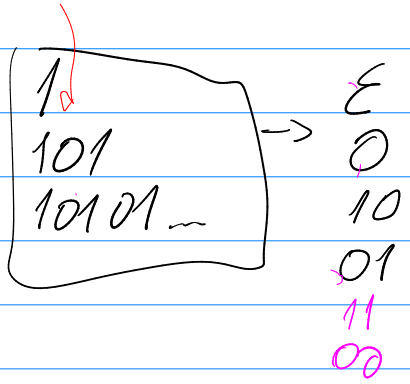
a) $(10)^* + ((10)^*0(0 + 1)^*) + (1(01)^*1(0 + 1)^*)$

b) $\varepsilon + (0(0 + 1)^*) + ((0 + 1)^*0) + ((0 + 1)^*(00 + 11)(0 + 1)^*)$

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

d) $(10)^*$

d) ε
10
1010



ε
0
10
01
11
00