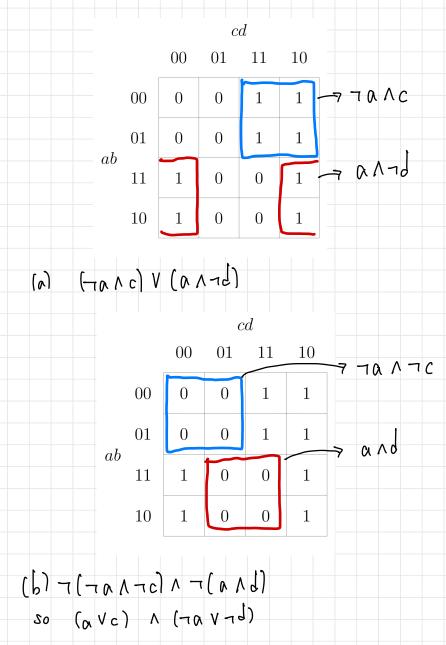
## Exercise 1



Exercise 2

Karnaugh map for + <- 7 (a Vb) would be 00 01 11 10 r 0 1 0 0 0 0

In order to make the DNF minimal, We need to make the block as large as possible.

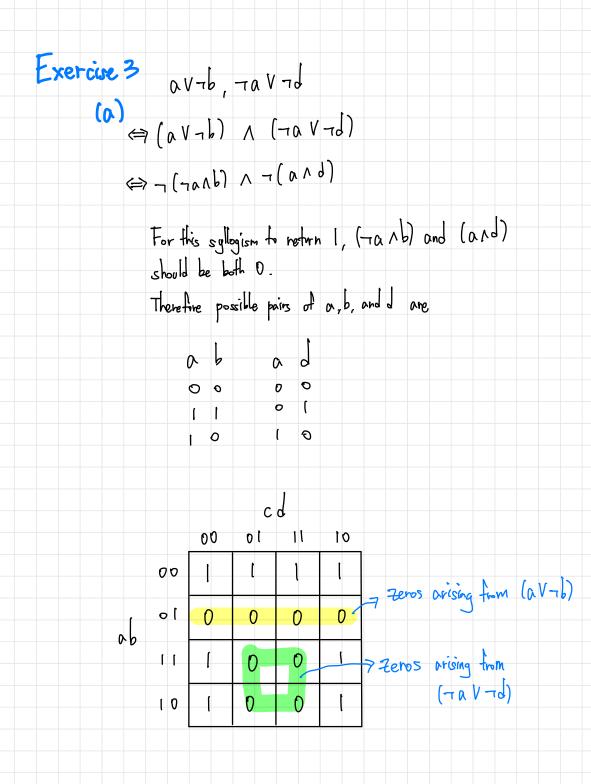
Since the size of the block needs to be 2" (n=10+20+3),

situation above moles the DNF minimal.

71 77 70 776 111 rhb

111 1-10

Therefore, the DNF equivalent of the expression is (7r17a17b) V (r1b) V (r1a)



(b) example of S = (-10 1-16) V (a1-16)

In  $a \vee \neg b$ ,  $\neg a \vee \neg d \models S$ ,  $0 \models 0$  (o)

if the antecedent is 0,  $0 \models 1$  (o)

the succedent S can be either Oorl  $1 \models 1$  (o)

if the antecedent is 1,

the succedent S must be 1.

Therefore, there are 28 different S. (8 being the number of 0s in Karnaugh map)