Minimization I

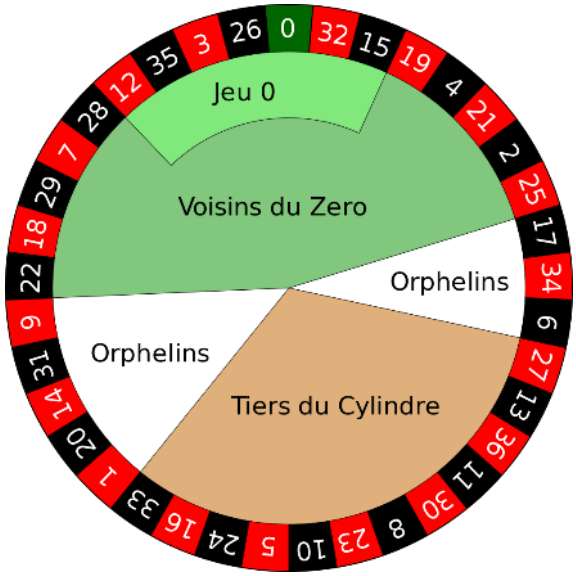
Please do the following exercises individually.

1. Creating Truth Tables

You have got the numbers 0 to 15. Which one are prime numbers?

2. Creating Truth Tables

Which numbers of a French roulette[1] are red?



3. Creating Truth Tables

Which one of these dolls[2] is taller that the green one?

[1] Source: https://commons.wikimedia.org/wiki/File:European_roulette_wheel.svg
[2] Source: https://openclipart.org/detail/317624/matryoshka-dolls-by-maria-alberto

Minimization II

Please do the following exercises individually.

1. Karnaugh Maps

Please make standard Karnaugh maps for the follow disjunctive normal forms.

$\phi(a,b,c) = (a \wedge \neg b \wedge c) \vee (\neg a \wedge \neg b \wedge c) \vee (a \wedge b \wedge c) \vee (\neg a \wedge b \wedge c)$

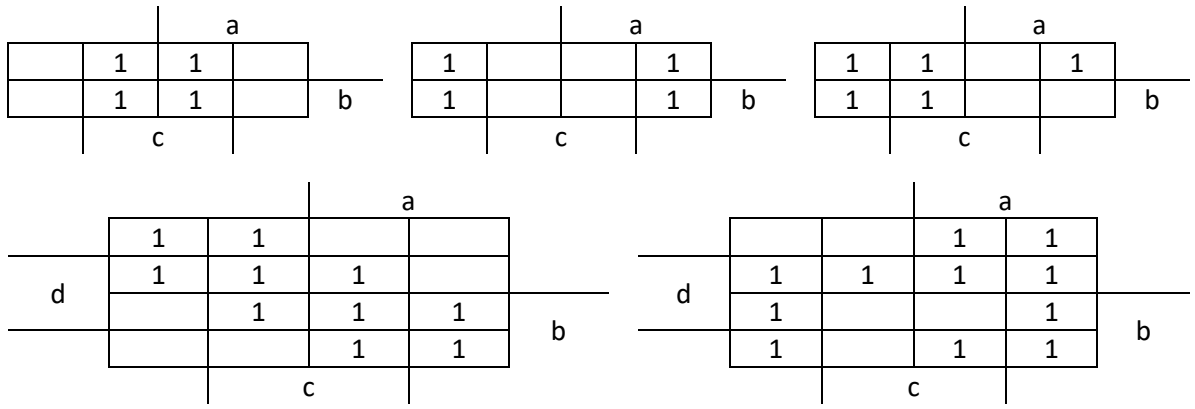
$\psi(a,b,c) = (\neg a \wedge \neg b \wedge \neg c) \vee (a \wedge b \wedge \neg c) \vee (\neg a \wedge \neg b \wedge c) \vee (a \wedge \neg b \wedge c) \vee (a \wedge \neg b \wedge \neg c)$

$\chi(a,b,c,d) = (a \wedge b \wedge c \wedge d) \vee (\neg a \wedge \neg b \wedge c \wedge d) \vee (a \wedge \neg b \wedge c \wedge d) \vee (\neg a \wedge b \wedge c \wedge d)$

$\xi(a,b,c,d) = (\neg a \wedge \neg b \wedge \neg c \wedge \neg d) \vee (\neg a \wedge \neg b \wedge c \wedge d) \vee (a \wedge b \wedge c \wedge d) \vee (a \wedge b \wedge \neg c \wedge \neg d) \vee (a \wedge \neg b \wedge \neg c \wedge \neg d) \vee (\neg a \wedge b \wedge \neg c \wedge \neg d)$

2. Finding Blocks

Please minimize the following Karnaugh maps.



3. Minimization

Please find the minimized switching function for assignment 1 and 3 of Minimization I.