

Week assignment 11 (Homework vault part)

Deadline: 8. 1. 2021

Upload scan, photograph, or a typesetted pdf of computation to the corresponding homework vault. Do not forget to include your name and personal ID number (učo) on the page(s).

Exercise 1. [3pts] Find the state of the Grover algorithm after one step in $d = 2$ for target $t = 1$. Provide explicit computation.

Exercise 2. [4pts] Draw a circuit representation of Grover oracle for $d = 4$ and target being $t = 6$. Full points will be given only to solutions that use only the Toffoli CCNOT gates, the CNOT gates and single qubit gates. You can use an arbitrary number of ancillas.