

Exercise Set 7

Quantum Computer Programming

1. [IBMQE] Challenge problem: *“Below is a clean LaTeX-formatted rewrite of your request, including proper math environments: The Deutsch–Jozsa algorithm. Recall that you had a question above asking you to work out the intermediate qubit states π_1 and π_2 of the Deutsch’s algorithm. Do the same for the intermediate $(n + 1)$ -qubit states π_1 and π_2 of the Deutsch–Jozsa algorithm, for the specific case $n = 2$. Then, verify that $\pi_3 = |-\rangle \otimes \sum_{x_0 x_1 x_2} (-1)^{f(x_0 x_1 x_2)} |x_0 x_1 x_2\rangle$, again, for the specific case $n = 2$.”*

References

[IBMQE] Quantum Platform Courses: Deutsch-Jozsa Algorithm
(<https://quantum.cloud.ibm.com/learning/en/modules/computer-science/deutsch-jozsa>)