

## Chapter 2: Classical Computation, Complexity, and Reversibility

This section is already in the book plan, but it has not been written fully yet. The book owner can press Generate section to write this part with the language model connected to TheoryTrace.

Section plan:

Builds the computational foundation needed for quantum algorithms: bits, Boolean circuits, asymptotic runtime, polynomial versus exponential scaling, randomized algorithms, and reversible computation. It explains why quantum circuits must be reversible and how ordinary computations can be embedded into reversible ones.

### References

References will be added when this section is generated.

## Document information

### Chapter 2: Classical Computation, Complexity, and Reversibility

---

|                      |                                                                                                                                                                                                                                                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project</b>       | Shor's Algorithm from First Principles                                                                                                                                                                                                                                                                                |
| <b>Document</b>      | Document 1.6                                                                                                                                                                                                                                                                                                          |
| <b>Author</b>        | mujirin                                                                                                                                                                                                                                                                                                               |
| <b>Verifier</b>      | Not verified                                                                                                                                                                                                                                                                                                          |
| <b>Downloaded</b>    | July 05, 2026 21:20 KST                                                                                                                                                                                                                                                                                               |
| <b>Status</b>        | Working                                                                                                                                                                                                                                                                                                               |
| <b>Document link</b> | <a href="https://www.theorytrace.com/projects/shors-algorithm-from-first-principles/documents/-chapter-2-classical-computation-complexity-and-reversibility/">https://www.theorytrace.com/projects/shors-algorithm-from-first-principles/documents/-chapter-2-classical-computation-complexity-and-reversibility/</a> |