- 1. Review of propositional logic
- 2. Review of first-order logic
- 3. Theorems and proofs
- 4. Mathematical foundations
- 5. Finite-state machines and regular languages
- 6. Nonregular languages
- 7. Regular expressions
- 8. Equivalence of regular expressions and finite-state machines
- 9. Programs and computability
- 10. Uncomputable problems
- 11. Reductions between problems
- 12. Using reductions to show problems are not computable
- 13. Partially computable languages
- 14. Computational complexity and polynomial time
- 15. Nondeterminism and NP
- 16. NP-completeness
- 17. Examples of NP-complete problems
- 18. Beyond NP
- 19. Practice questions