

Quadratic residues

- 8.1. Squares modulo prime p
- 8.2. The quadratic character of a residue
- 8.3. The residue -1
- 8.4. The residue 2
- 8.5. The law of quadratic reciprocity
- 8.6. Proof of the law of quadratic reciprocity
- 8.7. *The Jacobi symbol*
- 8.8. *The squares modulo m*
- 8.9. **Additional Exercises: Questions on squares mod m , and the Legendre symbol**
 - Infinitely many primes
 - Primitive roots for specially chosen primes
 - Alternate proofs of the value of $(2/n)$
 - Further proofs of the law of quadratic reciprocity
- Appendix 8A. Eisenstein's proof of quadratic reciprocity
- 8.10. **Eisenstein's elegant proof, 1844**

Appendix 8B. Small quadratic non-residues

8.11. The least quadratic non-residue modulo p

8.12. The smallest prime q for which p is a quadratic non-residue modulo q

8.13. Character sums and the least quadratic non-residue

Appendix 8C. The first proof of quadratic reciprocity

8.14. Gauss's original proof of the law of quadratic reciprocity

Appendix 8D. Dirichlet characters and primes in arithmetic progressions

8.15. The Legendre symbol and a certain quotient group

8.16. Dirichlet characters

8.17. Dirichlet series and primes in arithmetic progressions

Uniformity questions

Appendix 8E. Quadratic reciprocity and recurrence sequences

8.18. The Fibonacci numbers modulo p

8.19. General second-order linear recurrence sequences modulo p

8.20. Prime values in recurrence sequences