TOPICS

(1) Mersenne Primes and Perfect Numbers
    [Sil1] Chapters 14 and 15
(2) Primitive roots
    [Sil1] Chapters 25, 26 and 27
(3) Quadratic Reciprocity
    [Sil1] Chapters 21 and 22
(4) Which primes and which numbers are sums of 2 squares?
    [Sil1] Chapters 23 and 24
(5) The Gaussian Integers
    [Sil1] Chapter 34
(6) The descent, the equation $X^4 + Y^4 = Z^4$ and other equations
    [Sil1] Chapter 28
(7) Square and Triangular Numbers, and Pell's Equations
    [Sil1] Chapters 29 and 30
(8) Fibonacci's sequence
    [Sil1] Chapter 37
(9) Diophantine Approximation and Pell's Equations
    [Sil1] Chapters 31 and 32
(10) Irrational and Transcendental Numbers
    [Sil1] Chapter 35
(11) Transcendence of e
    [HW] Chapter 11.13
(12) Elliptic curves in Legendre Form and the group structure
    [Ser] Chapter 36
(13) The weak-Mordell Theorem implies the Mordell Theorem.
    [Sil2] Chapter VIII parts 3,4,5.

References

[Sil1] J. Silverman, *A friendly introduction to Number Theory*
[Sil2] J. Silverman, *The Arithmetic of Elliptic Curves*
[HW] G. Hardy and E. Wright, *An Introduction to the Theory of Numbers*
[Ser] E. Sernesi, *Geometria 1*