

Review Guide: Chapter 6

Definitions and Notation:

- How can you express the definition of subset formally as a universal conditional statement? (p. 337)
- What is a proper subset of a set? (p. 337)
- How are the definitions of subset and equality of sets related? (p. 339)
- What are Venn diagrams? (p. 340)
- What are the union, intersection, and difference of sets? (p. 341)
- What is the complement of a set? (p. 341)
- What is the relation between sets and interval notation? (p. 342)
- How are unions and intersections defined for indexed collections of sets? (p. 343)
- What does it mean for two sets to be disjoint? (p. 344)
- What does it mean for a collection of sets to be mutually disjoint? (p. 345)
- What is a partition of a set? (p. 345)
- What is the power set of a set? (p. 346)
- What is an ordered n -tuple? (p. 346)
- What is the Cartesian product of n sets, where $n \geq 2$? (p. 347)

Set Theory

- How do you use an element argument to prove that one set is a subset of another set? (p. 337-338)
- What is the basic (two-step) method for showing that two sets are equal? (pp. 339 and 356)
- How are the procedural versions of set operations used to prove properties of sets? (p. 352-353)
- Are you familiar with the set properties in Theorems 6.2.1 and 6.2.2? (pp. 352 and 354)
- Why is the empty set a subset of every set? (p. 362)
- How is the element method used to show that a set equals the empty set? (p. 362)
- How do you find a counterexample for a proposed set identity? (p. 367)
- How do you find the number of subsets of a set with a finite number of elements? (p. 369)
- What is an “algebraic method” for proving that one set equals another set? (p. 370-371)
- What is a Boolean algebra? (p. 375)
- How do you deduce additional properties of a Boolean algebra from the properties that define it? (p. 377)
- What is Russell’s paradox? (p. 378)
- What is the Halting Problem? (p. 379)