

CS 1155: Understanding and Constructing Proofs

Spring 1999

Home work 3 // Due: Friday, April 30, 1999

1. (20 points) Let p_1, p_2, \dots, p_n be n propositions for $n \geq 2$. Write a compound proposition that is true when:
 - (a) more than half of the propositions are true;
 - (b) less than half of the propositions are true;
 - (c) an odd number of propositions are true;
 - (d) an even number of propositions are true
2. (15 points) Prove that if there is a one-to-one, onto mapping from a set S to a set T , then there is a one-to-one and onto mapping from $P(S)$ to $P(T)$. (Here $P(S)$ is the power-set of S and $P(T)$ is the power-set of T .)
3. (10 points) Exercises 2.2, problem 2, (a), and (b), page 89 of the text.
4. (5 points) Exercises 2.2, problem 5 (b), page 89 of the text.
5. (15 points) Exercises 2.2, problem 18 (a), (b), (c), (d), and (e), page 91 of the text.
6. (10 points) Exercises 2.2, problem 20 (a), and (b), page 91 of the text.
7. (5 points) Exercises 2.2, problem 25 (b), page 91 of the text.
8. (5 points) Exercises 2.5, problem 16 (d), page 119 of the text.
9. (5 points) Exercises 2.5, problem 17 (b), page 119 of the text.
10. (10 points) Exercises 11.3, problem 6, (a), (b), (c), (d), and (e), page 615 of the text.