

# Homework Assignment 1

CS 330 Discrete Structures  
Fall Semester, 2009

**Due: Wednesday, September 2**

1. Page 19, problems 28 (b) and (e)
2. Page 50, problem 60
3. Page 61, problem 30 (a) and (b)
4. Page 149, problem 70 (c)
5. Page 178, problem 20
6. Page 192, problem 62
7. Page 280, problem 30
8. Page 281, problem 48
9. Bob and Carol are each secretly assigned consecutive positive integers; they each know their own number and that the numbers are consecutive, but they do not know each other's number. They are told to sit in a room with a clock that chimes every hour. They cannot communicate in any way, but are told to wait in the room until they can deduce the other's number and then leave the room at the next chime of the clock. Prove by induction that the person with the smaller number,  $n$ , will leave the room after the  $n$ th strike of the clock. (*Hint*: Reason as in the "hat problem" of Lecture 3, August 31.)