CS 3233 Discrete Mathematical Structures – Fall 04

2. Homework
Due **Monday 9/20/04** before class

Half the credit for all proofs on this homework assignment will be for the correct **structure** and the **good documentation** of the proof. So, please make sure that you specify what type of proof you use, what conjecture you are proving (what logical formula does it correspond to?), and document every step in your proof (why can you infer something from what you wrote before? Why is it true?).

1. 1.5 (p. 75)

   (a) (6 points) 20
   (b) (2 points) 36
   (c) (2 points) 38
   (d) (4 points) 44
   (e) (2 points) 64

2. 3.1 (p. 224)

   (a) (2 points) 28
   (b) (2 points) 16

3. (4 points)
   Prove the following conjecture:

   > Let l_1, l_2, l_3 be three lines in the plane. If l_1 and l_2 are both
   > perpendicular to l_3, then l_1 and l_2 are parallel.

   Hint: What does it mean for two lines to be perpendicular or parallel? Draw a picture, and think about the angles between the lines.