CSCI 1323 (Discrete Structures), Spring 2003
Homework 2

Assigned: January 28, 2003.

Due: February 4, 2003, at 5pm.

Credit: 20 points.

1 Problems

Do the following problems. You do not need to turn in answers for the ones marked "Not to turn in". Most such problems will be those for which the textbook provides an answer in the back of the book, so you can check your work.

1. (Not to turn in.) Do problem 2, parts (c) and (d), on p. 42 of the textbook.
2. (4 points) Do problem 2, parts (e), (f), (g), and (h), on p. 42 of the textbook.
3. (Not to turn in.) Do problem 4, part (a), on p. 42 of the textbook.
4. (Not to turn in.) Do problem 6, parts (a) and (b), on p. 42 of the textbook.
5. (Not to turn in.) Do problem 10, parts (a) and (b), on p. 43 of the textbook.
6. (6 points) Using the predicate symbols shown and appropriate quantifiers, write each English-language statement as a predicate wff. (The domain is the whole world.)

   $W(x)$ is "x is a positive integer."
   $P(x)$ is "x is prime."
   $G(x, y)$ is "$x \geq y$."

   - Some positive integers are prime.
   - Not all positive integers are prime.
   - For every positive integer n, there is a positive integer m such that m is prime and $m \geq n$.
   - There is a largest prime.
7. (Not to turn in.) Do problem 19, part (a), on p. 45 of the textbook.
8. (Not to turn in.) Do problem 8 on p. 57 of the textbook.
9. (Not to turn in.) Do problem 10 on p. 58 of the textbook.
10. (Not to turn in.) Do problem 15 on p. 58 of the textbook.
11. (4 points) Do problem 17 on p. 58 of the textbook.
12. (6 points) Do problem 18 on p. 58 of the textbook.
13. (Not to turn in.) Do problem 23 on p. 58 of the textbook.
14. (Not to turn in.) Do problem 29 on p. 59 of the textbook.