CS 773 Winter 2001

Exercises and Presentations 1

Instructor: William M. Farmer

Revised: 10 January 2001

Exercise 1

10 pts., due no later than 1-FEB-2001.

Give an informal proof of the following statement:

For all normal polyhehra, V - E + F = 2.

State your assumptions and define what you mean by a normal polyhedra, V, E, and F. Make the theorem you prove as strong as possible. You are welcome to use anything you learn from Lakatos's *Proofs and Refutations*.

Exercise 2

10 pts., due no later than 1-FEB-2001, required.

Install one of the mechanized mathematics systems given below on a CAS computer and make it is accessible to the instructors and the students of the course. Each student must choose a different system, so contact the instructor before starting. See the course Web site for references. Send an e-mail message to the instructor after the system is installed and working so that he can try it out.

1. ACL2 (A Computational Logic for Applicative Common Lisp)
2. Coq proof assistant
3. Ergo interactive proof tool
4. EVES tool
5. HOL (Higher Order Logic) theorem prover
6. Isabelle generic theorem prover
7. Jape (Just Another Proof Editor)

8. LP (Larch Prover)
9. LEGO proof assistant
10. Metamath Proof Explorer
11. Mizar tool
12. Nqthm (Boyer-Moore prover)
13. Nuprl tool
14. Otter automated deduction system
15. RRL Rewrite Rule Laboratory
16. TPS Theorem Proving System

Presentation 1

Due no later than 15-FEB-2001, required.

Give a 10-minute overview of PVS or one of the systems listed above.