

MTH 442/542 SPRING TERM 2008

HOMEWORK 5. DUE **Wednesday, May 14** IN CLASS.

A. All students

#1. Maple:

a.) Write a program that accepts as input a Gröbner basis and an order, and returns a minimal Gröbner basis.

b.) Write a program that accepts as input a minimal Gröbner basis and an order, and returns a reduced Gröbner basis.

c.) Write code that combines your programs (including earlier work) so as to accept a list of polynomials f_1, \dots, f_s , and an order, and return a reduced Gröbner basis.

Check your work with $\{z^2y + z^2, x^3y + x + y + 1, z + x^2 + y^3\} \subset \mathbb{Q}[x, y, z]$ with the lexicographic order where $x > y > z$.

p. 60. # 2.1.1, 2.1.7

p. 67. # 2.2.4

B. 542 only

p. 67 # 2.2.7