

MTH 442/542 SPRING TERM 2006

HOMEWORK 4. DUE **Wednesday, May 7** IN CLASS.

A. All students

p. 45. # 1.7.1 (you may use Maple)

#2. Maple: Write a program that accepts as input a list of polynomials  $f_1, \dots, f_s$ , and an order, and applies Buchberger's Algorithm 1.7.1 on p. 43 of our text so as to return  $g_1, \dots, g_t$  a Gröbner basis for the ideal generated by the  $f_i$ .

Note that you should use the Maple Groebner package, but of course, do not use the default command to determine the basis.

#3. Use your program from #2 to find the answers to p. 45 1.7.3 and 1.7.4 (ignore the text's direction to do these by hand).

p. 49 # 1.8.1, 1.8.2

B. 542 only

p. 50 # 1.8.6