

MTH 442/542 SPRING TERM 2006

HOMEWORK 3. DUE **Friday, Apr. 25** IN CLASS.

A. All students

p. 31 # 1.5.1, 1.5.2

p. 36. # 1.6.1, 1.6.2

#5. Maple: Write a program that accepts as input a polynomial f , a list of polynomials f_1, \dots, f_s , and an order, and applies Algorithm 1.5.1 on p. 28 of our text so as to return u_1, \dots, u_s and r such that $f = \sum_{i=1}^s u_i f_i$.

Note that you should use the `with(Groebner)`; to first call in the Groebner package. Pass the order into your program (say `foo` is the procedure):

```
poly := x2 + xy + y2;
polyList := [x2, y2];
order := 'plex'(x,y);
foo( poly, polyList, order);
```

Give results for your procedure when evaluated with various orders, as well as when the list of polynomials is changed.

B. 542 only

p. 38 # 1.6.19