MATH 583, Dr. Z. , **Problem Set #3**, Mon., Mar. 10, 2003.

Due: Mar. 24, 2003.

Theory:

1) Compute $s_{(3,2)}(x_1, x_2)$ in three different ways (from the definition as a certain determinant divided by the discriminant, from (3.4), and from 3.5.)

2) Test ex. 1 of section 3 with $\lambda = (3, 2)$, using problem 1.

3) For $n = 4$, compute the $p(4)$ by $p(4)$ matrix $< h_\lambda, h_\mu >$, for λ, μ partitions of 4. (Hint, first express one of the h's in terms of $m's$.)

4) Repeat 3) by expressing both h's in terms of $p's$.

Maple

1) Write a Maple procedure to verify ex. 6 of section 4 (p. 38) for genreral n. Run the program for $n \leq 6$.

2) Write a Maple procedure `IP(f,g,x,n)`, that inputs two symmetric polynomials in $(x[1], \ldots, x[n])$ (first the program has to check that f and g are indeed symmetric), and outputs the inner-product $< f, g >$. You may load, and use, the current version of `SF`.