MATH 583, Dr. Z., Problem Set #3, Mon., Mar. 10, 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 $\lambda, \mu$ 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 general $n$. 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.