

MATH 583, Dr. Z. , **Problem Set #2**, Mon., Feb. 24, 2003.

Due: Mar. 3, 2003.

Theory:

1)

a) Using (2.6) on p. 14 of Macdonald's book, express h_1, h_2, h_3, h_4 as polynomials in e_1, e_2, e_3, e_4 .

b) Using (2.11) on p. 16 of Macdonald's book, express h_1, h_2, h_3, h_4 as polynomials in p_1, p_2, p_3, p_4 . Using the involution ω , deduce from them expressions for e_1, e_2, e_3, e_4 .

c) Repeat (b) by using (2.14') on p. 17.

2) Using the data above, verify (2.9') for $\lambda = [2, 1, 1]$.

3*) Give a combinatorial proof of (2.11).

Maple

1) Using the package `linalg`, in particular the determinant `det`, implement the six formulas of ex. 8 of section 2 (p. 20), by writing procedures `eT0h(e,h,n)`, `hT0e(h,e,n)`, ... , `hT0p(h,p,n)`. For example `hT0e(h,e,2)`; should return h_2 in terms of e_1 and e_2 , which should be `e[1]**2-e[2]` .