

Math 819 HW 3- Due Thursday November 12

1. Let $\lambda = (3, 2)$ and consider the Specht module S^λ for Σ_5 .
 - a. Find the dimension of S^λ .
 - b. Determine the basis of standard polytabloids.
 - c. Determine the matrices for the permutations $(1, 2)$ and $(1, 2, 3, 4, 5)$ in terms of this basis.
 - d. Compute the Gram matrix for the usual bilinear form in terms of this basis.
 - e. Compute the dimension of the simple module D^λ in characteristics 2 and 3 by determining the rank of the Gram matrix.
 - f. Determine the weights of a G-Z basis of S^λ using residue sequences.
2. Page 65 # 3.
3. Page 70 # 6.
4. Page 83 #3
5. Look over Green's Indecomposability Theorem and its proof on page 62.

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