Representation Polygons

1. Draw the polygon diagrams of the following representations of $Sp(2)$, find the different Weyl orbits, and compute the multiplicities of each weight in the representation. Give names to each of these representations: Once as representations of $Sp(2)$ and once as representations of $SO(5)$.

   (a) $[1, 0]$
   (b) $[0, 1]$
   (c) $[2, 0]$
   (d) $[1, 1]$
   (e) $[0, 2]$
   (f) $[3, 0]$
   (g) $[2, 1]$
   (h) $[1, 2]$
   (i) $[0, 3]$

2. Find the multiplicity law for the weights of the $[n_1, n_2]$ representation of $Sp(2)$.

3. For each of the cases in (1) compute the character of the irreducible representation.