Ninth homework set solutions

1. By the Multiplier Rule, the number of 24-cycle discs attached to the 3-cycle disc equals the number of 8-cycle discs attached to the main cardioid. There are two 8-cycle discs in the principal series, and two in the Farey sequence, between the principal 3 and the Farey 5. So, a total of four 24-cycle discs are attached to the 3-cycle disc.

2. The 31-cycle disc B must be the Farey disc between the principal 15 and the principal 16. We know B cannot be a disc in the principal series, because no disc between A and B has a cycle number lower than 31. By the n^2-Rule, the largest disc has the smallest cycle number, and by the Farey sequence, the smallest cycle number between A and B is $15 + 31 = 46$.