Representation Theory of finite groups

Assignment Set 4

Due Day: May 3 (no extension using latex this time)

Problem A. (10pts) Suppose $n = 2m$. Decompose D_n into its conjugacy classes as we have done in class when n is odd.

Problem B. (15pts) Recall the following table for $G = S_4$ we have constructed in class:

Cycle type $\lambda \vdash 4$	(1,1,1,1)	(2,1,1)	(2,2)	(3,1)	(4)
Representative $x \in G$	1	$(1,2)$	$(1,2)(3,4)$	$(1,2,3)$	(1,2,3,4)
Size of the class $\lvert x^G \rvert$	1	6	3	8	6
Size of $C_G(x)$	24	4	8	3	4

Construct the table for S_5. You need to explain how those numbers are obtained in your table.