**MATH 579 Exam 6 Part I**
**Assigned 4/6/10, Due by classtime 4/8/10**
Please read the exam instructions.

Please write your answers on separate paper and put your name or initials on every sheet. Cross out work you do not wish graded; incorrect work can lower your grade, even compared with no work at all. Keep this sheet for your records. Show all necessary work in your solutions; if you are unsure, show it. Simplify all numerical answers to be integers, if possible. You are welcome to use your book, notes, calculators, computers, etc. This problem is worth 10-20 points.

**You may *NOT* discuss possible solutions to this exam with any human prior to submission. Violations of this policy will cause catastrophic course failure.**

Part I: Let $p, q$ be $n$-permutations of the same type (i.e. the same number of cycles of each length). Prove that there is some $n$-permutation $r$ such that $p = rqr^{-1}$.

For example, with $p = (1532)(46), q = (1234)(56)$, we can take $r = (254)$, and $(1532)(46) = (254)(1234)(56)(452)$.