

MATH 579 Exam 7 Part I
Assigned 4/15/10, Due by classtime 4/20/10
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: C_m is the graph with m vertices and m edges, consisting of a single long cycle. (e.g. C_4 is a square). Recall that a vertex coloring is proper if no two adjacent vertices get the same color. Find the number of proper colorings of this graph with n colors. Simplify your answer.