

MATH 579 Exam 5 Part I
Assigned 3/16/10, Due by classtime 3/18/10
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: Prove that $p(n) \leq \frac{p(n-1)+p(n+1)}{2}$, for $n \in \mathbb{N}$.

HINT: It can be shown that this is equivalent to $p(n+1) - p(n) \geq p(n) - p(n-1)$.