CS 170 Algorithms
Spring 2013 C. Papadimitriou, P. Raghavendra HW 4

Due Friday February 22th at 5pm

Instructions: Get an EECS instructional computer account if you don't have one already. Register with the grading system.

Please write your name, the username for your instructional account, student ID, GSI's name and discussion section time (e.g., Wed 11am) prominently on the first page of your homework. In a separate file called `collab.txt`, list your study partners for this homework, or "none" if you had no partners.

You are welcome to form small groups (up to four people) to work through the homework, but you **must** write up all your solutions strictly by yourself, and you must acknowledge any ideas you got from others (including from books, papers, web pages, etc.). Please read the collaboration policy on the syllabus (available on Piazza).

This homework is due Friday February 8th at 5pm electronically. You need to submit it using your instructional computer account with the command "`submit hw2`". Please submit two files: `hw2.pdf` should contain your answers, and `collab.txt` should list the people you worked with, or "`none`" if you worked completely on your own.

1. **(15 pts.) Counting Paths in a DAG** Problem 3.23. It begins "Give an efficient algorithm that takes as input a directed acyclic graph $G = (V, E)$, and two vertices..."
2. **(10 pts.) Prerequisites** Problem 3.16. It begins "Suppose a CS curriculum consists of n courses..."
3. **(20 pts.) One-Way Streets** Problem 3.15. It begins "The police department in the city of Computopia has made..."
4. **(15 pts.) Odd-Length Cycles** Problem 3.21. It begins "Give a linear-time algorithm ..."
5. **(25 pts.) 2SAT** Problem 3.28. It begins "In the 2SAT problem ..."
6. **(15 pts.) Multiple Shortest Paths** Problem 4.5. It begins "Often there are multiple ..."