CS 4514 Computer Networks Written Homework 3 C Term 2006 Due: Friday, February 24, 2006 (in-class)

1. (Problem 5.57 from text) Use the *traceroute* (UNIX) or *tracert* (Windows) to trace the route from your computer to various universities on other continents. Make a list of transoceanic links you have discovered. Some sites to try are:

www.berkeley.edu (California)
www.mit.edu (Massachusetts)
www.vu.nl (Amsterdam)
www.ucl.ac.uk (London)
www.usyd.edu.au (Sydney)
www.u-tokyo.ac.jp (Tokyo)
www.uct.ac.za (Cape Town)

- (Problem 5.9 from text) Consider the subnet of Fig. 5-13(a). Distance vector routing is used, and the following vectors have come in to router C: from B: (5,0,8,12, 6, 2) from D: (16, 12, 6, 0, 9, 10); and from E: (7, 6, 3, 9, 0, 4). The measured delays from B, D, and E are 6, 3, and 5 respectively. What is C's new routing table? Give both the outgoing line to use and the expected delay.
- 3. (Problem 5.38 from text) Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation.
- 4. (Problem 5.46 from text) ARP and RARP both map addresses from one space to another. In this respect, they are similar. However, their implementations are fundamentally different. In what major way do they differ?

PLEASE TURN OVER TO READ QUESTION 5 !!!!

5. Consider the following network. With the indicated link costs, use Dijkstra's shortest-path algorithm to compute the shortest path from H to all network nodes. Show how the algorithm works by computing a table similar to the table shown in class (see class slides for an example).

