CMPT 371: Homework Assignment 4

1. Construct a network with the following properties: The links have symmetric costs in both directions. There is a node $s$ such that the total cost of the RPF broadcast tree rooted at $s$ is five times that of the minimum spanning tree (a tree which includes all the nodes, and has minimum total cost). Show your network as well as the two trees. Now construct another, different network with the difference that this time the RPF tree is $1/5$ times the cost of the minimum spanning tree.

2. Show an example of how a cycle of length 4 might happen on distributed Bellman Ford with poisonous reverse.

3. I have an ISP with an address pool of 1024 addresses. Of these, 32 will go to A, 48 to B, 48 to C, and 128 to D. Show the smallest routing table (using longest prefix matches) for this.

4. Pick 4 addresses far away from Vancouver, trace the paths to them (ie, trace the routes using traceroute or its different versions to find the nodes on the paths). What are the paths? What other things did you see in your traces?

Each question is worth 25 points, due on Mar 20.