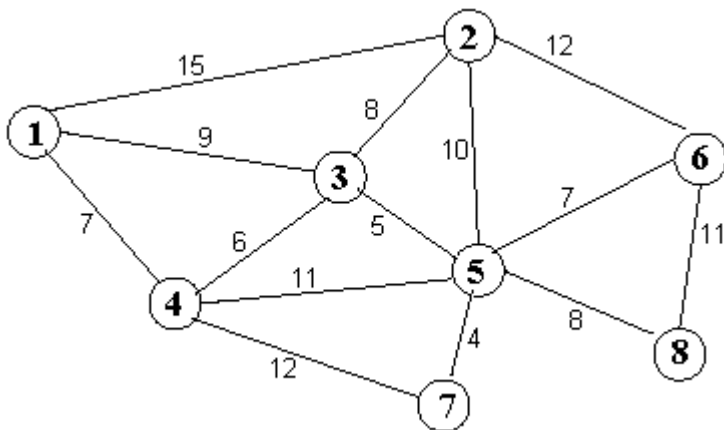


56:272 Integer Programming & Network Flows
Quiz #3 -- Fall 2003



1. What is the degree of node 5 in the network above? _____
2. What is the *eccentricity* of node 5 in the network above? _____
3. Is node 5 a (*vertex-*)center of the network? _____
4. Is there more than one center of this network? *Circle: (Yes/No)*
If yes, which edge length could you change so that there will be *only one* center? $(i,j) = \underline{\quad}$,
length _____
If no, which edge length could you change so that there will be *more than one* center? $(i,j) = \underline{\quad}$,
length _____
5. How many odd nodes are there in the above network? _____
6. What is the smallest number of edges in a spanning tree of this network? _____

Sketch an example of each of the following, if possible:

7. A tree having six vertices, all of even degree. *Possible?* (Yes / No)

8. A tree having six vertices, all of odd degree. *Possible?* (Yes / No)

9. A tree with two centers. *Possible?* (Yes / No)