

1.

Affiliation: *TheyRule.net*

Tree: *About.com*

Scale-free: *The Internet*

2.

Joe Friday Question: "*Who was the president of the United States in 1984?*"
Follow up Deep Thought Question: "*What were the economic conditions like during Reagan's presidency?*"

It is a deep thought question because it is an open ended question but has a specific goal of questioning the conditions of a specific period of time with a focus on the economy.

3.

Largest Connected Component:

Vertices:

{Trumpetto, Cocda-di, Metcalf, Gillespie, Robertson, Hampton, Yim, Alexander, Lambert}

Edges:

{(Trumpetto, Cocda-di), (Cocda-di, Metcalf), (Metcalf, Gillespie), (Gillespie, Robertson), (Robertson, Hampton), (Gillespie, Yim), (Yim, Alexander), (Yim, Lambert)}

4.

Maximum possible number of edges:

$$= \frac{1}{2} * |V| * |V-1|$$

$$= \frac{1}{2} * |62| * |61|$$

$$= 1891$$

5.

Density of student discussion network:

$$= (|E|) / (\frac{1}{2} * |V| * |V-1|)$$

$$= (40) / (\frac{1}{2} * |62| * |61|)$$

$$= 0.02115$$

6. Suppose we remove all edges incident to Foss from the above student discussion network (hypothetically, of course). The resulting graph is a forest. What is the maximum number of edges you can add to the resulting graph and still have a forest?

Max edges, still having a forest = 61 edges (1 less than total nodes)

Already existent edges, supposing the removal of Foss = 37

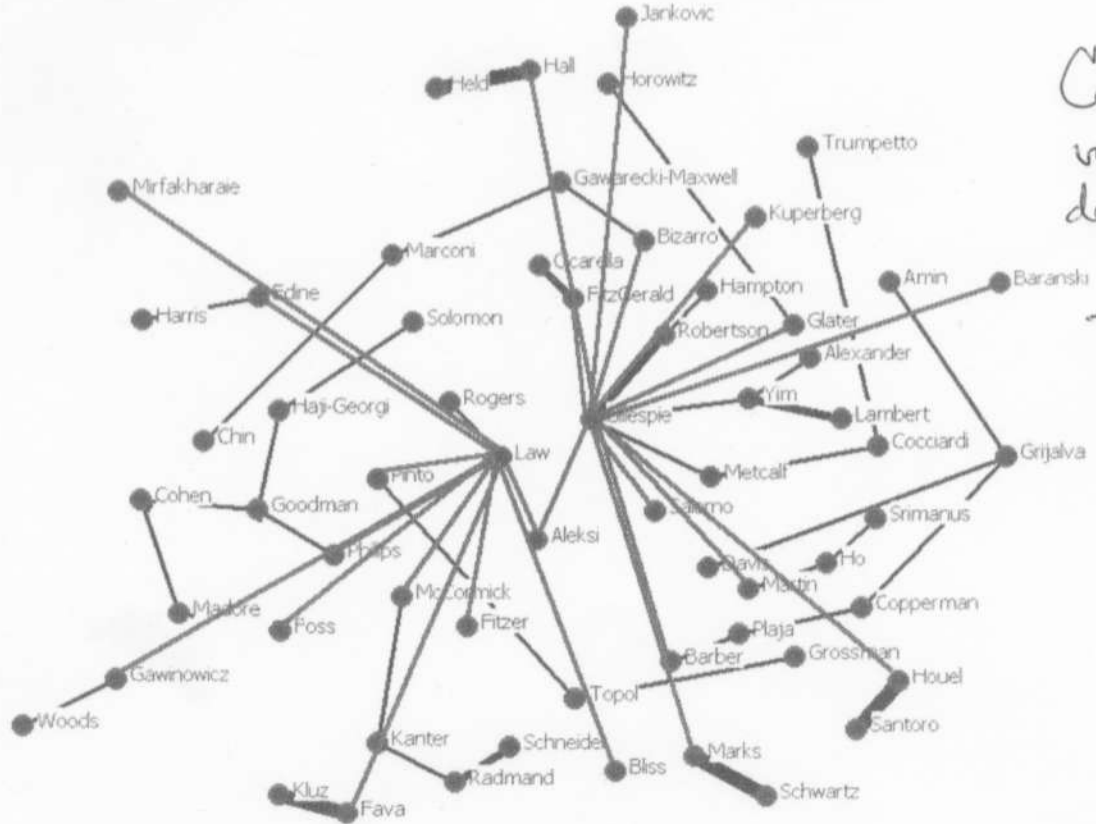
61-37= 24 edges can be added to the graph, and we would still have a forest.

a. High Degree Centrality, Low Betweenness Centrality



Here we have very high degree centrality for Aleksi

b. Low Degree Centrality, High Betweenness Centrality



Compared to very low degree centrality here, But very high betweenness centrality

For explicit set notation see HW4 soln