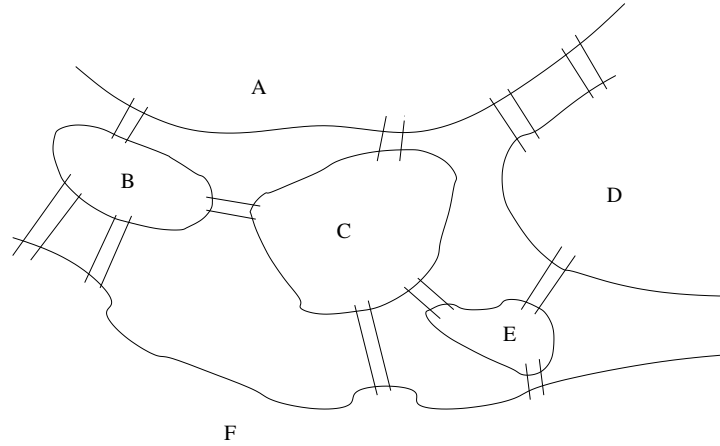1. Consider the following bridge puzzle with 6 land masses connected by 11 bridges.

(a) Follow the procedure introduced in the tutorial to complete the table below.

Number of letters in path =

Region	Number of Bridges	Number of Times Region Must Appear in Path
A		
B		
C		
D		
E		
F		
total		

(b) Compare the number at the bottom of the table to the number at the top. Is it possible to construct a continuous path that crosses each bridge exactly once? Explain your reasoning. If it is possible, draw such a path on the diagram. From which region(s) must the path start?

For questions 2 and 3, your answers should be based on our class discussions, the *Scientific American* article by Binnig and Rohrer, and the World Wide Web pages at

- `http://www.physnet.uni-hamburg.de/home/vms/pascal`

- `http://www.almaden.ibm.com/vis/stm/gallery.html`

- `http://www.iap.tuwien.ac.at/www/surface/STM_Gallery`

- `http://people.ccmr.cornell.edu/~jcdavis/mK_stm/background/index.htm`

2. Describe briefly how an STM works. What does it consist of, and what kind of information does it allow us to obtain? Include diagrams if needed.

3. In many of the images at the IBM site, large features corresponding to individual atoms can be seen, but, in addition small ripple-like features are also present. (See for example 'Copper Perspective,' 'Circles on Circles,' or any of the 'Corral' images.) Explain what these ripples are.