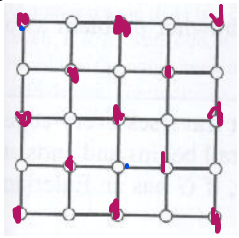
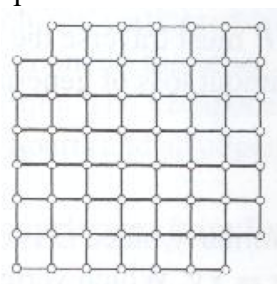
PROBLEM OF THE DAY 16
Chapter 6: Eulerian and Hamiltonian Paths/Circuits

1. Is it possible to walk the seven bridges of Konisburg so that you cross every bridge exactly twice?
2. For which values of n does the complete graph K_n have a Eulerian circuit?
3. Determine whether or not the graph below has a Hamiltonian circuit.



4. Determine whether or not the graph below has a Hamiltonian path.



5. For which values of n does the complete graph K_n have a Hamiltonian path?
6. Mouse and Cheese: A block of cheese is made up of 3x3x3 cubes as shown in the figure below. Is it possible for a mouse to tunnel its way through this block of cheese by (a) starting at a corner, (b) eating its way from cube to adjacent cube, (c) never passing through any cube twice, and, finally, (d) finishing at the center cube? Prove your answer.