1. Prove that if n is odd and $n > 1$, then $\chi'(K_n) > n - 1$.

The next few questions refer to the *line graph* $L(G)$ of a graph G, defined in the text, Definition 7.1.1.

2. Problem 7.1.11, text.

3. Problem 7.1.33, text

4. A simple graph G is said to be of class 1 if $\chi'(G) = \Delta(G)$ and of class 2 otherwise. Determine (and prove) the class number of each of the following Harary graphs: $H_{6,3}$, $H_{6,4}$, $H_{6,5}$, $H_{7,3}$, $H_{7,4}$.

5. a. Prove or disprove: If G is Eulerian then $L(G)$ is Hamiltonian.

   b. Find a 2-connected non-Eulerian graph whose line graph is Hamiltonian. (Hint: Read exercise 7.2.10.)

6. Problem 7.2.2, text. Determine any of our necessary or sufficient conditions apply.

7. Problem 7.2.8, text.

8. Answer both of these questions for the graph below:

   a. Is the Chvatal condition satisfied?

   b. Is the closure complete?