Preliminaries

February

1. If G is a simple graph with n vertices, what is the maximum number of edges that G can have?
2. If G is a simple graph with n vertices, what is the minimum number of edges that G can have?
3. Prove that for any graph G of order at least 2, the degree sequence has at least two equal entries.
4. Prove that every connected graph contains at least one spanning tree.
5. Give the adjacency matrix for K_n.
6. Give the adjacency matrix for P_n (reminder: P_n is the simple chain, path, of n vertices.).
7. Give the adjacency matrix for C_n (reminder: C_n is the simple cycle, or ring, of n vertices).
8. Give the adjacency matrix for $K_{m,n}$.

Further reading