In this assignment, graphs are undirected and do not have parallel edges or self-loops.

A. Draw a graph of eight vertices, such that their degrees are respectively 4, 3, 3, 3, 2, 2, 1, 0.

B. Draw a graph whose vertices are all of the four-bit bitstrings, in which two vertices are connected if their bitstrings differ in exactly one bit. (Draw systematically, so that you and the grader don't get confused.)

C. Prove that in any graph of at least two vertices, there must be two vertices that have equal degree.

D. For any graph G = (V, E), define the *twin graph* G' = (V', E') as follows. The vertices of the twin graph G' are the edges of the original graph G. Two vertices u and v in G' are joined by an edge if and only if the edges u and v in G share a vertex. How many vertices and edges does G' have?