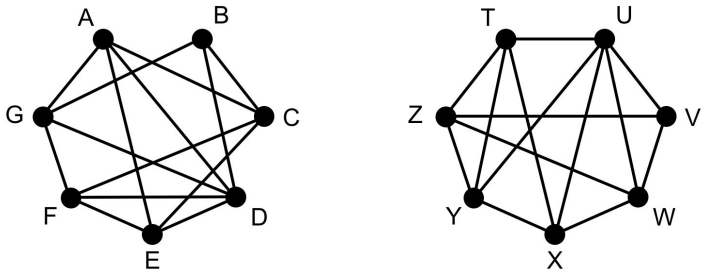
1. Prove that the following two graphs are not isomorphic.



2. Can a graph exist on ten vertices whose vertex degrees are given as follows? In each case, either construct such a graph or explain why it doesn't exist.

   (a) 8, 8, 8, 8, 6, 5, 5, 3, 2, 2.

   (b) 8, 8, 8, 8, 6, 5, 5, 2, 2, 2.

3. A graph G is defined as follows. Its vertices are the binary strings of length n with exactly three 1's, and two vertices are adjacent if they have exactly two 1's in the same position. How many vertices and edges does G have? For which $n \geq 3$ is G bipartite?

4. A graph G is a subgraph of the 237-dimensional cube Q_{237}. Prove that G is bipartite.