Problem 1 Draw the following graphs. Each graph is the same as another graph — find the pairs.

(a) K_2

(b) C_3

(c) P_2

(d) K_3

Problem 2 There are n people at a conference, some of whom have shaken hands with each other. Model this situation with a graph, then prove that the number of people who have shaken an *odd* number of hands is even.

Problem 3 Consider the following two graphs. Prove that they are not isomorphic using either their *degree sequence* or *k-colorability*. That is, either show that they have different degree sequences or show that there is some k such that only one can be k-colored.