Quiz #6. Math 104, Symmetry, Shape, and Space.
Instructor: Ramin Naimi

Name: _____
Fri 26 Oct 2001

Closed book. Closed Notes. 20 points per problem. Please write very legibly.

Do **only two** of the following problems.

Please circle the two problems you are choosing:

1. **2**. **3**.

1. (a) Draw a diagram of the complete bipartite graph $K_{2,5}$ to prove that it is planar.
   (b) Draw the complete graph K_6. Then indicate which edges you would remove from it so that the remaining graph is $K_{3,3}$.

2. Apply the algorithm we learned in class and in the book to solve the following House Swap Problem. Show and explain all your work.

Owners	Preferences
A	C D E F A B
B	D E F A B C
C	F E D C B A
D	F A B C D E
E	A B C D E F
F	A B C D E F

3. (a) What is the definition of the Euler Characteristic of a graph?
   (b) Explain why the Euler Characteristic of every tree is one.