MATH 55 - WORKSHEET 7 (MONDAY)

1 Show that every connected graph with n vertices has at least $n-1$ edges.

2 Find the number of paths of length n between two different vertices in K_4 if n is

a 2

b 3

c 4

d 5

4 Show that a simple graph G with n vertices is connected if it has more than $\frac{(n-1)(n-2)}{2}$ edges [Hint: Induct on the number of vertices in G; for the inductive step delete a vertex].

3 How many non-isomorphic connected simple graphs are there with n vertices when n is

a 2

b 3

c 4

d 5