

# WRITTEN ASSIGNMENT # 3

MATH 38

DUE: FRIDAY: APRIL 8, 2005

## Read Section 1.2

1. Suppose someone new to proofs asks you why proof by induction works. This person thinks that you are assuming what you want to prove. What would you say to convince him/her that induction really works?
2. Definition 1.2.2 defines a path, a trail and a walk on a graph. What is the difference between each. Draw a graph and give an example of a walk that is not a trail.
3. Give an example of a graph with 5 components.
4. True/False: The length of a walk/trail/path is equal to the number of vertices in the walk/trail/path.
5. Read the proof that every  $u, v$ -walk contains an  $u, v$ -path and give a summary of the main ideas used to prove this Lemma 1.2.5.