

# MATH 451

Fall 1990

Geometry is a way of looking at your world. Take charge of it - make it yours. Understand how you see things and see how you understand things. Geometry can say something about you.

Think of what we are embarking on together as a stroll in the woods. I will show you paths that I have trod and point to what I have seen. I have been there many times before - but oh! - there is much more to see that I have not yet seen. You, with your unique vision, will point out to me things that I have passed by. Feel free to explore - look under stones - down in hollow stumps. You can find a riverlet of water that if followed will lead to the sea. But just as valuable are the little surprises that spark something inside - a trillium in a spot of sun - a scarlet eft wriggling under a fallen leaf. Do not hurry "to get somewhere" - linger a while - listen - see what's around where you are.

*David Henderson*

214 White Hall  
phone: 255-3523

### To People of 451:

Write out your thinking about each question and put it into the mail slot in the center first-floor hallway in White Hall with Fred Reiner's name on the top. Fred Reiner will be my assistant and will help me read your papers. *Everything turned in will be looked at by me* and most of them will also be looked at by Fred. Usually only one of us will go over any particular response in full detail. We will both (usually) write comments. (I will always use green ink and Fred will use red ink.) Your papers with comments will be returned during class. We expect that any paper turned in by 10 am on Monday will be returned to you in class on Tuesday and any paper turned in by class time on Tuesday will be returned in class on Thursday.

**Respond to our comments** - use them as invitations to explore, or to clarify your understanding, or as an opportunity to clarify our understanding. (We learn by reading what you write.) Keep responding (in writing and/or in office hours) to our comments until you understand. Turn in whatever your thinking is on a question even if only to say: "I don't understand such and so" or "I'm stuck here". (Be as specific as possible.) Also, ask questions in class, after class, on your papers, or in my office. In this way we can share with each other, and I will be better able to tell where the class is at, and you will benefit more from class sessions. Do not fall behind; you should turn in homework every week.

**When exploring the questions** allow yourself to be open-minded and flexible. Let your thinking wander. Some questions will have short, fairly definitive answers; and others will lead into deep areas of meaning which can be probed almost indefinitely. Don't accept anything just because you remember it from high school or because some authority (including me) says it's good. Insist on understanding (or seeing) why it is true or what it means for you. Make models, draw pictures, use rubber bands on a ball or orange, use scissors and paper - Play.

**Sharing your ideas with another person** and then listening to that person's ideas is an effective way of learning. It will also tend to break down the isolation and competitiveness that we often feel in academia. If two (or more) of you work out an answer together - that is good. But make sure that you understand it your way and that you communicate that understanding in your own words and please write your collaborator's name on your paper.

**You may use ideas you see in class**, even if you turn in a response to a question after it has been discussed in class. But again make sure that you understand it your way and that you communicate that understanding in your own words and that you acknowledge the class' contribution.

**I will ask and encourage people to share their thinking in class.** It is important for all of us to listen carefully to each person who speaks in class and to respond in constructive, thoughtful ways. Many ideas will come up that will feel very strange to you and to me. You will learn if you listen well to the person and ask questions. If something seems wrong to you start out by finding which parts you agree with and then proceed from that base.

*David*