Math 101!
October 2, 2001

Announcements:

One of our dedicated Math 101 Course Assistants, Ari Shwayder, is giving the Math Table Talk this week on the axioms of plane geometry. His title is 'CAUSE WE LIVING IN A EUCLIDEAN WORLD' ("Proofs" of the Parallel Postulate). Everyone is welcome at 5:30 on Tuesday, October 2, in the Mather House A& B Dining Hall.

Reading:

Read Chapter Two of the Notes (N2) as posted on the website.
Look again through Chapter Three of Wolf (W3).
Read Chapter Four of Wolf (W4), paying attention to §W4.5 and §W4.6 especially.
Study the page from Polya handed out in class. Think of illustrations.

Problem Set:

A. Classify all possible closure operators on a set X with only two elements. What can you say about the kinds of possibilities when X has three elements? More than three?
B. In the Notes, §N2.4: #1. Do as much of §N2.4: #2 as you can. Try working through a simple example, and explaining in your own words what the point of this exercise is.
C. In Wolf, §W4.5: #6a and #19. Also, §W5.3: #14a and #17.
D. In Wolf, §W3.2: #3 and #7. You do not need to explain much unless you want to.

Activities: (Talk about these questions in section or in the website's discussion section.)

A. In case you still have doubts about the definition of "P implies Q," try constructing your own definition using a truth table. What happens?

B. Give as many equivalent ways as you can for saying in English that P implies Q.

C. Comment on this definition of mathematics from Bertrand Russell (of Paradoxical fame): "Pure mathematics consists entirely of such asseverations as that, if such and such a proposition is true of anything, then such and such another proposition is true of that thing... It's essential not to discuss whether the proposition is really true, and not to mention what the anything is of which it is supposed to be true... If our hypothesis is about anything and not about some one or more particular things, then our deductions constitute mathematics. Thus mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true."

D. Definitions are often stated using the conditional. For example, if x satisfies such and such conditions, then we call x a so and so. Is this convention technically correct? What would be better? Give some illustrations. Why do you think people do this?