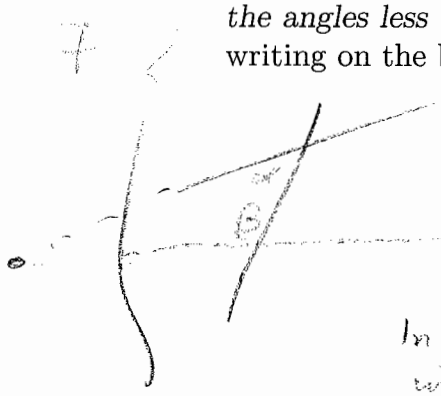
10 points total

August 23, 2007 MA 460 Name Solution

(10 pts) 1. Let's quote the fifth postulate of Euclid, as in the text: *[I]f a straight line falling on two straight lines makes the interior angles on the same side less than two right angles, the two straight lines, if produced indefinitely, meet on the side on which are the angles less than the two right angles.* Illustrate this with a sketch, as if you were writing on the board for your class.



$\alpha + \beta < 180$ degrees implies sides meet on the side which includes α and β

Note We do not ask that α or $\beta < 90°$ nor $\beta < 90°$!

In fact, $\beta > 90°$ fine. Sentence = don't read in more restrictions than given in original wording.

Suppose that we change the wording so that the interior angles on the same side add to two right angles. On the information developed in Tuesday's lecture, can we say that these lines do not meet? (We will discuss this later in class today!)

If $\alpha + \beta = 180$ in NK postulate can say nothing neither did Tuesday's lecture.

(5 pts) 2. Suppose that triangles ABC and $A'B'C'$ are similar in the sense of the definition at the beginning of the notes (I often use this notation as a shorthand way of saying that this means that $\angle ABC \equiv \angle A'B'C', \angle BCD = \angle B'C'D', \angle CDA = \angle C'D'A'$–I let the notation do some of the work). Does this *definition* of similarity tell us that $AB/CD = A'B'/C'D'$? Explain carefully.