Quiz #3. Math 360, Axiomatic Geometry.   Name: _____

Instructor: Ramin Naimi   Fri 11 Oct 2002

Closed book. Closed Notes. Please write very legibly.

Please do not write in this area.   1.   2.   3.

1. (20 points) Let U and V be two convex sets.

   (a) Is $U \cap V$ necessarily convex? Prove your answer.

   (b) Is $U \cup V$ necessarily convex? Prove your answer.

2. (20 points) Suppose $ABCD$ is a non-self-intersecting quadrilateral such that $\measuredangle A = \measuredangle C$ and $\measuredangle B = \measuredangle D$. Prove that $ABCD$ is a parallelogram.

3. (20 points) Prove the SSS similarity criterion for triangles: Let ABC and PQR be triangles such that, with the correspondence $A \to P$, $B \to Q$, $C \to R$, corresponding sides have a constant ratio r. Prove the two triangles are similar.