MA 387 Exam I February 26,1975

Name________________________________

1. Prove that for all sets A and B, $A \subseteq B$ if and only if $A \cup (B - A) = B$.

2. Show that if $F : A \to B$, $G : B \to A$ and $F \circ G = i_B$ then F maps A onto B and G is 1 - 1.

3. Calculate each of the following:

(a) $\bigcap_{n \in Z^+} [0,1/n]$

(b) $\bigcup \{(a,b) \mid (a,b) \subseteq [1,2]\}$

4\. (a) Prove that if R is a linear ordering relation then so is R^{-1}.

(b) Give an example of a relation R which is a well-ordering relation but R^{-1} is not.

5. Find two sets X and Y such that $X \approx Y$ but $(X - Y) \not\approx (Y - X)$.