**Math 300A&B** **Introduction to Mathematical Reasoning** **Fall 2009**
**Assignment #2: Due Wednesday, 10/14/09**

## Part II:

5. For each of the following statements, do the following things:

   - Translate it into symbols. (Be sure that your symbolic statement explicitly includes implied universals and domains of quantifiers.)
   - Negate the symbolic statement and simplify. (In particular, this means to remove parentheses in expressions of the form $\sim(\ldots)$.)
   - Translate the negated statement back into a clear and precise English sentence, without using the word "no" or "not."

   (a) The square of every real number is positive.

   (b) The square of some real number is positive.

   (c) There is an integer that is larger than its square.

   (d) Every integer is larger than its square.

   (e) There is no integer whose square is greater than 0 and less than 1.

   (f) There is at least one integer whose square is greater than 0 and less than 1.

   (g) Not every integer has a positive square.

   (h) If $x$ is a real number such that $x^2 - x < 2$, then $x < 2$ and $x > -1$.

   (i) There is a real number $x$ greater than 2 such that $x^2 - x > 2$.