Math 301
Quiz 1
Fall 2007

Justify all answers with neat and organized work. Clearly indicate your answers. 20 points possible.

1. (5 pts.)

(a) Rewrite the given statement in the form of "If A, then B."

The square of an odd integer is odd.

(b) Define the term *prime*. (Use the definition given in the textbook.)

(c) Define the term *odd*. (Use the definition given in the textbook.)

2. (5 pts.) (a) Let r and s be integers. Define what it means for s to be divisible by r (i.e., $r \mid s$).

(b) Disprove: If r, s, and t are positive integers with $r \mid (st)$, then $r \mid s$ or $r \mid t$.

3. (5 pts.) Suppose that a, k, m, and z are integers. Prove that if $a \mid k$ and $m \mid z$, then $(am) \mid (kz)$.

4. (5 pts.) Write the truth table for the following statement form.

$$(x \to y) \wedge ((\neg x) \to y)$$