Math 3520 - Quiz 1

Name:_____

Prove or disprove each of the following. For this assignment prove or disprove the following. Write out your answers with correct mathematics, and with correct English.

1. Prove if $5|n^2$ then $5|n$.
2. Disprove if $9|n^2$ then $9|n$.
3. Prove for all odd $n \in \mathbb{Z}$ we have $4|n^2 - 1$.
4. Compute the following
   (a) $\cup_{n=1}^{4}(n, n+1]$
   (b) $\cup_{n=1}^{\infty}(n, n+1]$
   (c) $\cap_{n=1}^{4}[0, 1/n]$
   (d) $\cap_{n=1}^{\infty}[0, 1/n]$
   (e) $\cap_{n=1}^{\infty}[0, 1/n]$