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. Let A, B be sets then $A \cup B = A$ if and only if $B \subseteq A$.
2. Prove or disprove the following:
   (a) If $3|m$ then $3|m^2$.
   (b) If $9|m^2$ then $9|m$.
3. Let $n \in \mathbb{Z}$. Then $3n+1$ and $5n+2$ are of opposite parity (even/odd).
4. Let $a, b \in \mathbb{R}$ be distinct. Then either $\frac{a+b}{2} > a$ or $\frac{a+b}{2} > b$.