Math 301 Quiz #5a Name_____

1. Let A, B, C be sets. Prove: If $A \subseteq B$, then $C - B \subseteq C - A$.

2. Let A, B, C be sets. Prove: $A \times B \subseteq A \times (B \cup C)$.

3. Let R be the relation on integers given by $R = \{(x, y) : x, y \in \mathbb{Z}, (x + 1) \mid y\}$. Determine if the following are TRUE or FALSE. (As always, **do not use T and F**.)

   (a) ${}_2R_5$.

   (b) ${}_6R_{14}$.

   (c) If ${}_aR_b$ then ${}_aR_b^{-1}$.

   (d) ${}_{10}R_4^{-1}$.