Math 301
Quiz 4

Show all work in a neat and organized fashion. Clearly indicate your answers.
10 points possible.

1. (3 pts.) For the following relation, find R^{-1}.

$$R = \{(x, y) : x, y \in \mathbb{N}, x \mid y\}$$

2. (3 pts.) Consider the relation $\subseteq$ on $2^{\mathbb{Z}}$ (i.e., the "is-a-subset-of" relation defined on all sets of integers). Prove or disprove: $\subseteq$ is symmetric.

3. (4 pts.) Let R, S, and T denote sets. Prove that

$$(R - S) \times T = (R \times T) - (S \times T).$$