January 25, 2008

Which of the following statements are true? Write the negation of each statement. Which of the negations are true?

1. $(\forall x \in \mathbb{R})\ x + 1 > x$.

2. $(\forall x \in \mathbb{Z})\ x^2 > x$.

3. $(\exists x \in \mathbb{Z})(\forall y \in \mathbb{Z})\ x \leq y$.

4. $(\forall y \in \mathbb{Z})(\exists x \in \mathbb{Z})\ x \leq y$.

5. $(\forall \epsilon > 0)(\exists \delta > 0)(\forall x \in \mathbb{R})[0 < |x - 1| < \delta] \Rightarrow [|x^2 - 1| < \epsilon]$.