

Math 2283 - Introduction to Logic

Quiz #5 - 2008.09.24

Solutions

Consider the following definition:

Let \mathbb{N} be the set of integers greater than 0.

Let \mathbb{W} be the set of integers greater than -1.

Let \mathbb{Z} be the set of all integers both positive and negative and zero.

Let \mathbb{Q} be the set of rational numbers.

Let \mathbb{R} be the set of real numbers.

Determine if the following statement is true if the universal class \mathbb{V} is each of the 5 given classes above. (Hence you will have 5 answers).

$$\mathbf{E}_{x,y} \left[(x \neq y) \wedge \left(x, y \in \mathbf{C}_z [2z - z^2 > 0] \right) \right]$$

If $\mathbb{V} = \mathbb{N}$ the statement is false.

If $\mathbb{V} = \mathbb{W}$ the statement is false.

If $\mathbb{V} = \mathbb{Z}$ the statement is false.

If $\mathbb{V} = \mathbb{Q}$ the statement is true.

If $\mathbb{V} = \mathbb{R}$ the statement is true (also true because of the previous one).