

Math 2283 - Introduction to Logic

Quiz #3 - 2016.01.20 Solutions

1. How does one make a conditional sentence false?

To make a conditional sentence false, the antecedent (hypothesis) must be true, while the consequent (conclusion) is false.

2. Which interpretation of the disjunction is used as definition in logic?

We use the non-exclusive or as the definition of the disjunction in logic.

3. Which logical connective is used to convey the equivalence of two statements/sentences?

The biconditional connective (if, and only, if) is used to convey the equivalence of two statements/sentences.

4. Determine if the following quantified sentence is true or false:

$$\forall x, y \exists z (x = y + z)$$

This statement is true, for each pair (x, y) , there is a z , namely $z = x - y$.

5. Determine if the following quantified sentence is true or false:

$$\exists z \forall x, y (x = y + z)$$

This sentence is false, there is no single z which works for all pairs (x, y) .