

Math 2283 - Introduction to Logic

Quiz #1 - 2015.08.26 Solutions

Determine if the following quantified statements are true or false.

1. $\mathbf{A} \mathbf{E} \underset{x}{x^2} + \underset{y}{y^2} > 1$

This statement is true, for each fixed x , you can find a y so that the relation holds, (just pick a large value of y).

2. $\mathbf{E} \mathbf{A} \underset{x}{x^2} + \underset{y}{y^2} > 1$

This statement is true, just pick a value of x , where $x > 1$.

3. $\mathbf{A} \mathbf{E} \underset{x}{x^2} + \underset{y}{y^2} < 1$

This statement is false, for instance, pick a value of x , where $x > 1$.

4. $\mathbf{E} \mathbf{A} \underset{x}{x^2} + \underset{y}{y^2} < 1$

This is also false, and follows directly from problem 3 due to the symmetry of the equation.