

Negation of a statement:

- 1) There exists $y \in Y$, s.t for every $x \in X$, $|y-x| < \varepsilon$
- 2) For every $x \in X$, there exists $y \in Y$, s.t $|y-x| < \varepsilon$

First, these two statements are not equivalent.

- Negation:
- 1) There doesn't exist $y \in Y$, s.t for every $x \in X$, $|y-x| < \varepsilon$
 - 1)' For every $y \in Y$, there exists $x \in X$, s.t $|y-x| \geq \varepsilon$the first negation statement is more direct, but the second negation statement may be more useful when we use it to prove by contradiction.
 - 2) For some $x \in X$, there doesn't exist $y \in Y$, s.t. $|y-x| < \varepsilon$.
 - 2)' There exists $x \in X$, s.t. for every $y \in Y$, we have $|y-x| \geq \varepsilon$.