Proof Techniques Worksheet

Real Analysis

August 25, 2025

1 Exercises

I. Let p and q denote statements. Use a truth table to prove DeMorgan's law:

$$\neg (p \vee q) = \neg p \wedge \neg q$$

and

$$\neg (p \wedge q) = \neg p \vee \neg q.$$

II. Prove that for every $\epsilon > 0$, there exists a $\delta > 0$ such that $2 - \delta < x < 2 + \delta$ implies that $7 - \epsilon < 3x + 1 < 7 + \epsilon$.