

Homework 4, Math 215

1. Prove that $\{x : x^2 - 1 < 0\} = (-1, 1)$
2. Use a truth table and also draw a Venn diagram to prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.
3. Write the power set of the set $A = \{1, 2, 3, 4\}$.
4. Prove $\forall m \in \mathbb{Z}^+ \exists n \in \mathbb{Z}^+ : m \leq n$
5. Prove $\exists m, n \in \mathbb{Z} : m \leq n$
6. Show $\exists x \in \mathbb{R} : \forall y \in \mathbb{R} : x^2 + y^2 = 0$ is false