

Exercise 0.3.6

a) Wanting to show: $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

In order to prove this equivalence, we have to prove the implication both ways. We use two lemmas for this.

Definition 1.1 (test) — $A \cap (B \cup C) \implies (A \cap B) \cup (A \cap C)$

Let $x \in A \cap (B \cup C)$.

Definition 1.2 — Test.

b)