

Start Time:

Your name:

Stop Time:

Integrity signature:

Time limit 15 minutes, not counting download and upload. Please add explanation below if over 17 minutes total.

PL axioms:

PL1: $A \rightarrow B \rightarrow A$

PL2: $(A \rightarrow B \rightarrow C) \rightarrow (A \rightarrow B) \rightarrow (A \rightarrow C)$

PL3: $\neg A \rightarrow A \rightarrow B$

PL4: $(\neg A \rightarrow A) \rightarrow A$

• $A \vee B$ and $A \wedge B$ stand for $\neg A \rightarrow B$ and $\neg(A \rightarrow \neg B)$.

1. Prove that there exists a PL-proof of $A \rightarrow B \rightarrow A \wedge B$.

2. Prove that there exists a PL-proof of $\neg(A \wedge B) \rightarrow \neg A \vee \neg B$.