1. Recall that a "theorem of TFL" is a sentence of TFL that can be proven with no global premises (i.e. that the only premises come as part of subproofs). Prove the following theorem of TFL:

$$N \vee \neg N$$

2. Recall that two sentences $\mathcal{A}$ and $\mathcal{B}$ of TFL are "provably equivalent" means you can prove $\mathcal{B}$ from $\mathcal{A}$ as a premise and vice-versa (so it requires **two proofs**). Show that the following two sentences of TFL are provably equivalent:

$$R \longleftrightarrow E \text{ and } E \longleftrightarrow R.$$