Malliteoria

Harjoitus 11

1.
    (i) Show that if $\mathcal{A}$ and $\mathcal{B}$ are countable and $\mathcal{A} \equiv_{\infty,\omega} \mathcal{B}$ then $\mathcal{A} \cong \mathcal{B}$.
    (ii) Show that if $\mathcal{A}, \mathcal{B} \models T_{dlo}$ then $\mathcal{A} \equiv_{\infty,\omega} \mathcal{B}$.
    (iii) Show that $(\mathbf{R}, <) \not\cong (\mathbf{R} - \{0\}, <)$.

2. Suppose $\kappa > \omega$ is such that $L_{\kappa\omega}$ is κ-compact i.e. if T is a collection of $L_{\kappa\omega}$-sentences of size κ and every $T' \subseteq T$ of size $< \kappa$ has a model, then T has a model. Show that κ is regular i.e. every $A \subseteq \kappa$ of size $< \kappa$ is bounded in κ.

3. Suppose $\kappa > \omega$ is such that $L_{\kappa\omega}$ is κ-compact. Show that κ is not a successor cardinal.