Nome/i Cognome/i

Esercizio 1. The language contains only the binary relations $<$ and e. The theory T_0 says that $<$ is a strict linear order and that e is an equivalence relation. Let $\mathcal{M}$ consists of models of T_0 with partial embeddings as morphisms. Axiomatize the theory T_1 of rich models. Are all countable models of T_1 rich? (Give a short informal justification.) Does T_1 have quantifier elimination? (Give a short informal justification.)

Esercizio 2. The language contains a binary relation r and countably many unary relation symbols r_i. The theory T_0 says that r is a graph and that the r_i are mutually exclusive. Let $\mathcal{M}$ consists of models of T_0 with partial embeddings as morphisms. Axiomatize the theory T_1 of the rich models. Are all countable models of T_1 rich? (Give a short informal justification.) Does T_1 have quantifier elimination? (Give a short informal justification.)

Esercizio 3. Let T_0 be the theory axiomatized by $T_{\rm lo}$ and the axiom that says that every point has an immediate successor and an immediate predecessor. Let $\mathcal{M}$ consists of models of $T_{\rm lo}$ with, as morphisms, maps that preserve the distance between points. Describe a countable rich model and the theory of rich models. (A short informal description suffices.)