Exercise 4.30: Does the fixed-point theorem also hold without the assumption that the lattice has finite height? If yes, give a proof; if no, give a counterexample.

**解答：**

如果格高度无限长，则不动点定理不成立。

举例：定义函数 $f: L \to L$,在格$(L, \sqsubseteq)$中，L 为整数集，$\sqsubseteq$ 为≤，$\forall x \in L$，$f(x) = x+1$。

解释：$f(x)$与 $g(x) = x$，$x \in Z$ 无交点，也即$\forall k$, $f^{k+1}(\perp) = f^{k}(\perp)+1$,故 $f^{k}(\perp) \neq f^{k+1}(\perp)$。