

Exercises

3.211 [ODQ] Difficulty:*. (Proposed on 2022-12) Let the ordered set (X, \leq) be given; we define

$$P_x \stackrel{\text{def}}{=} \{w \in X : w < x\} \quad .$$

Suppose (X, \leq) meets these two requirements:

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$$\forall x, y \in X, P_x = P_y \Rightarrow x = y$$

- every non-empty set $A \subseteq X$ contains at least one minimal element, i.e.

$$\exists a \in A, \forall b \in A \neg(b < a) \quad ;$$

then (X, \leq) is well ordered.

Solution 1. [26R]