Exercises

3.132 [22P] *(Proposed on 2023-01-17)* Given two ordered non-empty sets $(X, \leq_X)$ and $(Y, \leq_Y)$, and $f : X \to Y$ as defined in [07V].

- If $A \subseteq X$ and $m = \max A$ then $f(m) = \max f(A)$; similarly for the minimums;
- $(X, \leq_X)$ is totally ordered if and only if $(Y, \leq_Y)$ is;
- $(X, \leq_X)$ is well ordered if and only if $(Y, \leq_Y)$ is.
- Suppose that $(X, \leq_X)$ and $(Y, \leq_Y)$ are well ordered, let S_X and respectively S_Y be the functions "successor", [1ZO], then we have that x is not the maximum of X if and only if $f(x)$ is not the maximum of Y, and in this case $y = S_X(x)$ if and only if $f(y) = S_Y(f(x))$.