3.120 [07B]Prerequisites:[078].*(Proposed on 2022-10-13)* Show that if for the total ordering of X all "suprema" exist then all "infima" also exist; and vice versa. Precisely, show that these are equivalent:

- Every non-empty set bounded from below in X admits greatest lower bound;
- every non-empty set bounded from above in X admits least upper bound.

Solution 1. *[207]*