If $a \in A$ is the infimum of A then it is unique.

Proof:
Suppose we have tow infimums of $(a, a') \in A^2$
$\Rightarrow \forall x \in A, a \preceq x \; and \; a' \preceq x$
$\Rightarrow a \preceq a' \; and \; a' \; \preceq a$
$\Rightarrow a = a'$