

MATH 430
HOMEWORK 10 — DUE WEDNESDAY, APRIL 20

1. Give an example of a dense linear order without endpoints that has the same cardinality as \mathbb{R} , but is not isomorphic to $(\mathbb{R}, <)$.
2. The complex conjugate \bar{z} of a number $z = a + bi \in \mathbb{C}$, where $a, b \in \mathbb{R}$, is defined by setting $\bar{z} = \overline{a + bi} = a - bi$. Is the map that sends z to \bar{z} a field automorphism of \mathbb{C} ? Prove your answer.
3. Show the field $(\mathbb{R}; 0, 1, +, \cdot)$ has nontrivial automorphisms, but the only automorphism of $(\mathbb{R}; 0, 1, +, \cdot, <)$ is the identity map.