Note Information

- **ID:** `202501180703`
- **Timestamp:** `Saturday 18th January, 2025 07:31`
- **Tags:** `Mathematics, Analysis-I-Abbott, The-Axiom-of-Completeness`
- **References:**
  - Abbott, S., Understanding Analysis

Main Content

Main Idea
R is an ordered field and contains Q as a subfield.

Explanation
R is a field, meaning that addition and multiplication of real numbers are commutative, associative, and the distributive property holds. R also has an order, meaning the following two properties hold:

1. If $x \in R$ and $y \in R$, then one and only one of the statements
$$x < y, \qquad x = y, \qquad y < x$$
is true.
2. If $x, y, z \in R$, if $x < y$ and $y < z$, then $x < z$.

Finally, R is a set containing Q. The operations of addition and multiplication on Q extend to all of R in such a way that every element of R has an additive inverse and every nonzero element of R has a multiplicative inverse.

Review

1. Define the set of real numbers.

Links to Other Notes

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- **ID:** `202501180727`
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Main Content

Main Idea
Every nonempty set of real numbers that is bounded above has a least upper bound.

Explanation

Review

1. Define the Axiom of Completeness.

Links to Other Notes

- Initial Definition for R

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