The Big Question

“How are the real numbers different from the Rational Numbers?” (Schramm 1)

THE BIG THEOREM

“If $F$ is an ordered field, the following are equivalent:
(a) $F$ has the Least Upper Bound Property.
(b) $F$ has the Archimedean property, and the Nested Intervals Property.
(c) $F$ has the Archimedean property, and the Bolzano-Weierstrass theorem holds in $F$.
(d) The Heine-Borel theorem holds in $F$.
(e) $F$ has the Archimedean property, and the Cauchy criterion holds in $F$.
(f) $F$ is connected.” (77)

References