Theorem (1.6.13). *If x is an irrational number, then $\frac{1}{x}$ is irrational.*

Proof. By the contrapositive. Suppose that $\frac{1}{x}$ is a rational number. By definition there exist integers a and b such that $\frac{1}{x} = \frac{a}{b}$. Logical equivalence has it that $x = \frac{b}{a}$, thus rational. ∎