**Theorem** (1.6.14)**.** *If $x$ is a rational number and $x \neq 0$, then $\frac{1}{x}$ is rational.*

*Proof.* It is trivial to express $x$ as $x = \frac{x}{1}$. Since $x$ is rational, by the definition of ration numbers there exist integers $a$ and $b$ such that $\frac{x}{1} = \frac{a}{b}$. By equivalence we have $\frac{b}{a} = \frac{1}{x}$, so $\frac{1}{x}$ is rational by definition whenever $x$ is a nonzero rational number. ■