Theorem (1.6.10)**.** *The product of two rational numbers is rational.*

Proof. Let m and n be rational numbers. By definition there exist integers a, b, c, and d such that $m = \frac{a}{b}$ and $n = \frac{c}{d}$. The product of m and n is $\frac{ac}{bd}$. Since the product of integers is an integer, ac and bd are integers. Thus mn is rational by definition. ■