Proposition 2.14.

(i) $1 \cdot 1 = 1$.

(ii) *If* $x \in \mathbb{Z}$ *and* $x \cdot x = x$ *then* $x = 0$ *or* 1.

Proof. Part (i) follows straight from Axiom 2.3 (with $m = 1$).

(ii) Suppose that $x \in \mathbb{Z}$ satisfies $x \cdot x = x$. If $x = 0$, the statement "$x = 0$ or 1" is true. If $x \neq 0$, then the hypothesis of Proposition 2.7 is satisfied (with $m = x$), so that we can conclude $x = 1$. $\square$