COROLLARY (2.4.5). *If* $t > 0$, *then* $\exists\ n_t \in \mathbb{N} \ni 0 < \dfrac{1}{n_t} < t$.

PROOF. Since $\inf \left\{ \dfrac{1}{n} : n \in \mathbb{N} \right\} = 0$ and $t > 0$,
t is not a lower bound of $\inf \left\{ \dfrac{1}{n} : n \in \mathbb{N} \right\}$, so
$\exists\ n_t \in \mathbb{N} \ni 0 < \dfrac{1}{n_t} < t$. □

COROLLARY (2.4.6). *If* $y > 0$, *then* $\exists\ n_y \in \mathbb{N} \ni n_y - 1 \leq y < n_y$.

PROOF. Let $E_y = \{m \in \mathbb{N} : y < m\}$.
By the Archimedean property, $E_y \neq \emptyset$.
By Well-Ordering, E_y has a least element, say n_y.
Then $n_y - 1 \notin E_y$, so
$n_y - 1 \leq y < n_y$. □