Exercises

3.143 [08Y] *(Proposed on 2022-12)* Let $I, J \subseteq \mathbb{R}$ and let $f : I \to J$ be given by $f(x) = \sin(x)$. By choosing $I = \mathbb{R}$ or $I = [0, \pi/2]$ or $I = [-\pi/2, \pi/2]$, and choosing $J = \mathbb{R}$ or $J = [-1, 1]$, say for which choices f is surjective, and for which it is injective.

(This exercise is to make you ponder about the difference between "formula" and "function.".)