injective one-to-one

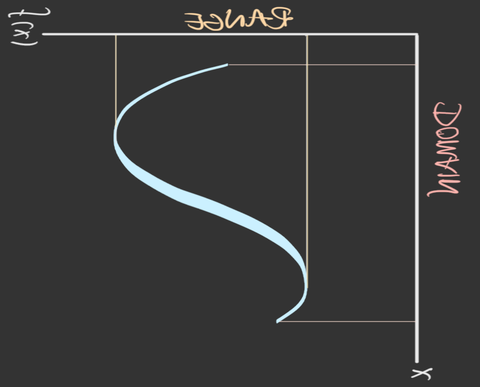
surjective onto

bijective

different classes of functions

f(x)
TABLE
DOMAIN
x

different classes of functions



Let $f : A \to B$ be a function.

- The function f is said to be **injective** (or **one-to-one**) if for any $x, y \in A$, $f(x) = f(y)$ implies $x = y$.
  Or by contrapositive: $x \neq y$ implies $f(x) \neq f(y)$.

- The function f is said to be **surjective** (or **onto**) if range$(x) = B$.

- If f is both injective and surjective, we say that f is **bijective** .
  - a bijective function is invertible, and so has an inverse.

inverse functions