MATH 102: Ideas of Math

Day 19

Nov 8, 2023

Functions again

Definition (Injective functions)

Let $f : A \to B$ be a function. f is said to be *injective* (or *one-to-one*) if

$$\forall a_1, a_2 \in A, f(a_1) = f(a_2) \implies a_1 = a_2 .$$

An injective function is called an *injection*.

Definition (Surjective functions)

Let $f : A \to B$ be a function. f is said to be *surjective* (or *onto*) if

$$\forall b \in B \exists a \in A, f(a) = b\,.$$

A surjective function is called a *surjection*.

Definition (Bijective function)

A function f is *bijective* if it is both injective and surjective.
A bijective function is called a *bijection*.