Computational Logic - Assignment 2

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Exercise 2

A bijective function is both injective and surjective. We define a function $f : D \to C$. We then express its injectivity and surjectivity respectively as such:

$$\forall x_1 \in D \; \forall x_2 \in D((x_1 \neq x_2) \Longrightarrow f(x_1) \neq f(x_2))$$
$$\forall y \in C \; \exists x \in D(y = f(x))$$

We can then introduce conjunction between the two formulas to descirbe a bijective funciton:

$$\forall x_1 \in D \; \forall x_2 \in D((x_1 \neq x_2) \Longrightarrow f(x_1) \neq f(x_2)) \; \wedge \forall y \in C \; \exists x \in D(y = f(x))$$