Definition (Functions as relations). Let $\mathbf{A}$ and $\mathbf{B}$ be sets. A relation $R \subseteq \mathbf{A} \times \mathbf{B}$ is a *function* if it satisfies the following two conditions:

1. $\forall x \in \mathbf{A} \quad \exists\, y \in \mathbf{B} : \quad \langle x, y \rangle \in R$
2. $\forall \langle x_1, y_1 \rangle, \langle x_2, y_2 \rangle \in R$ holds : $x_1 = x_2 \Rightarrow y_1 = y_2$.