

**Definition 1.** Let  $A, B$  be classes.  $A$  is *equinumerous to  $B$*  iff there exists a bijection between  $A$  and  $B$ .

**Proposition 2.** Let  $A$  be a class. Then  $A$  is equinumerous to  $A$ .

*Proof.*  $\text{id}_A$  is a bijection between  $A$  and  $A$ . ■

**Proposition 3.** Let  $A, B$  be classes. If  $A$  and  $B$  are equinumerous then  $B$  and  $A$  are equinumerous.

*Proof.* Assume that  $A$  and  $B$  are equinumerous. Take a bijection  $f$  between  $A$  and  $B$ . Then  $f^{-1}$  is a bijection between  $B$  and  $A$ . Hence  $B$  and  $A$  are equinumerous. ■

**Proposition 4.** Let  $A, B, C$  be classes. If  $A$  and  $B$  are equinumerous and  $B$  and  $C$  are equinumerous then  $A$  and  $C$  are equinumerous.

*Proof.* Assume that  $A$  and  $B$  are equinumerous and  $B$  and  $C$  are equinumerous. Take a bijection  $f$  between  $A$  and  $B$  and a bijection  $g$  between  $B$  and  $C$ . Then  $g \circ f$  is a bijection between  $A$  and  $C$ . Hence  $A$  and  $C$  are equinumerous. ■