

Equinumerosity

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Definition 0.1. Let A, B be classes. A is equinumerous to B iff there exists a bijection between A and B .

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Proposition 0.2. Let A be a class. Then A is equinumerous to A .

Proof. id_A is a bijection between A and A . □

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Proposition 0.3. 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. □

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Proposition 0.4. 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. □