

Finite and Infinite Sets

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Definition 0.1. Let x be a set. x is finite iff $|x| < \omega$.

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Definition 0.2. Let x be a set. x is infinite iff x is not finite.

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Proposition 0.3. Let x be a set. Then x is finite iff $|x| = n$ for some $n \in \omega$.

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Proposition 0.4. Let x be a set. Then x is infinite iff $|x| \geq \omega$.

Proof. $|x| \geq \omega$ iff $|x| \not< \omega$. □

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Proposition 0.5. ω is infinite.