

Proving a set X is uncountable

To prove a set X is uncountable, do one of the following:

- ▶ The same kind of proof by contradiction – enumeration and diagonalization
- ▶ Prove that $|X| = |Y|$ where Y is uncountable
- ▶ Find an uncountable set Y and show that $Y \subset X$
- ▶ Find an uncountable set Y and a 1-1 function from Y to X ; this is denoted by $|Y| \leq |X|$