



## Why

We want to count the number of elements in a set.

## Defining result

**Proposition 1.** *A set can be equivalent to at most one natural number.*<sup>1</sup>

The *number* (or *size*) of a finite set is the unique natural number equivalent to it.

## Notation

We denote the number of a set by  $|A|$ . Equally good notation, which we will not use in these sheets, is  $\#(A)$ .

## Restriction to a finite set

If we restrict  $E \mapsto |E|$  to the domain  $\mathcal{P}(X)$  of some set  $X$  then  $|\cdot| : \mathcal{P}(X) \rightarrow \omega$  is a function.<sup>2</sup>

## Properties

**Proposition 2.**  $A \subset B \longrightarrow |A| \leq |B|$

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<sup>1</sup>A proof will appear in future editions.

<sup>2</sup>Future editions will clarify this point.



