

#### SET NUMBERS

### 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* of a finite set is the unique natural number equivalent to it. We also call this the *size* of the set.

#### Notation

We denote the number of a set by |A|.

#### Restriction to a finite set

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

# **Properties**

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

 $<sup>^1\</sup>mathrm{A}$  proof will appear in future editions.

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

