

If  $(E, *)$  have a neutral element, then it is unique.

Proof:

Let  $(e, e') \in E^2 \mid \forall x \in E, x * e = e * x = x$  and  $x * e' = e' * x = x$   
 $\Rightarrow e * e' = e$   
 $\Rightarrow e' = e$