

Definition (Semigroup)

A *semigroup* \mathbf{S} is:

Constituents

1. A set \mathbf{S} ;
2. A binary operation $\circ : \mathbf{S} \times \mathbf{S} \rightarrow \mathbf{S}$ called *composition*.

Conditions

1. Associative law

$$(x \circ y) \circ z = x \circ (y \circ z),$$

for all $x, y, z \in \mathbf{S}$.