MATH 335 lecture 5

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Definition 1. Group:
A group is a set of objects and a binary relation: A non empty set G with a binary operation (a,b)$\mapsto ab$ is called a group if :

1. The binary operation is associative such that:

$$ab(c) = a(bc) \quad \forall \quad a,b,c \in G$$

2. The binary operation has to have an identity element denoted as 'e'. such that:

$$ae = ea = a \forall \quad a \in G$$

3. Every element has to have an inverse with respect to the binary operation. :

$$\forall \quad a \in G, \exists \quad b \in G : ab = ba = e$$

let b be phrased as a^{-1}