

Groups and Subgroups

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1 Introduction

Definition 1.1 (Binary Operation):

A binary operation $*$ on a set G is a function $*$: $G \times G \rightarrow G$. We shall write $*(a, b)$ as $a * b$.

Definition 1.2 (Associative Binary Operation):

A binary operation $*$ on a set G is said to be associative if $\forall a, b, c \in G$ we have that $a*(b*c) = (a*b)*c$.

Definition 1.3 (Commutative Binary Operation):

A binary operation $*$ on a set G is said to be commutative if $\forall a, b \in G$ we have $a * b = b * a$.

Example 1.1:

1. $+$ (usual addition) is a commutative binary operation on \mathbb{Z} (or on \mathbb{Q} , \mathbb{R} , or \mathbb{C} respectively).
2. \times (usual multiplication) is a commutative binary operation on \mathbb{Z} (or on \mathbb{Q} , \mathbb{R} , or \mathbb{C} respectively).

Remark(s):

This is a remark.

Note. This is a note.