

# Group Theory

V Sai Prabhav

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# Chapter 1

## Introduction to Groups

1.1 Binary Operations

1.2 Groups and Examples

1.3 Elementary Properties of Groups



## Chapter 2

# Subgroups and Cosets

### 2.1 Subgroups

### 2.2 Cyclic Groups

### 2.3 Cosets and Lagrange's Theorem



## Chapter 3

# Homomorphisms and Isomorphisms

### 3.1 Homomorphisms

### 3.2 Kernel and Image

### 3.3 Isomorphism Theorems





## Chapter 4

# Group Actions

### 4.1 Group Actions and Permutation Representations

### 4.2 Orbits and Stabilizers

### 4.3 The Class Equation