استاذ ضیاء

Abstract Algebra

Group Theory

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Contents:-

Chapter One :- Binary Operation , Mathematical System , Group , Commutative Group , Finite Groups and Some Important Properties of Groups .

Chapter Two :- Some Types of Groups , " Group of Integer Module n , Symmetric Group and The Symmetric Group of Square "

Chapter Three :-Subgroups , Examples , Some Theorems of Subgroups , Center of Group , The Product of Subgroups Examples and Theorems , Cyclic Groups , Examples and Theorems of Cyclic Groups .

Chapter Four :- Left and Right Costs for the Subgroups, Index, Lagrange Theorem , Corollaries of Lagrange Theorem , Normal Subgroup , Simple group , Quotient Group , Examples and Theorems , The Conjugate of the Elements in the Group , Conjugate of the Subgroups , The Commutater . Internal Direct Product of Two Subgroups , External Direct Product of Two Groups .

Chapter Five :-Group Homomorphism , Examples and Theorems , Isomorphic Groups , The First Fundamental Theorem , The Second Fundamental Theorem, The Third Fundamental Theorem in Isomorphic Group .

Chapter Six :-The Chain , Some Types of Chains , Maximal Normal Subgroup , Jordan – Holder Theorem .

Chapter Seven :-

P-groups , Sylow Theorems , Examples and Theorems .

الرموز ألمستخدمه

$\forall$	For all	لكل
$\exists$	There exist	يوجد
S .t	Such that	بحيث
$\Rightarrow$	Then	أذن
$\Leftrightarrow$	If and only if	أذا فقط أذا
(i .e)	Which is mean	بمعنى اخر
N	The set of Natural number	مجموعة الأعداد ألطبيعيه
Z	The set of Integer number	مجموعة الأعداد الصحيحة
Z_e	The set of even integer number	مجموعة الأعداد الصحيحة ألزوجيه
Z_o	The set of odd integer number	مجموعة الأعداد الصحيحة الفردية
Z_+	The set of positive integer number	مجموعة الأعداد الصحيحة الموجبه
Q	The set of rational number	مجموعة الأعداد النسبية
$\mathcal{R}$	The set of real number	مجموعة الأعداد الحقيقية
$\mathbb{C}$	The set of complex number	مجموعة الأعداد العقدية
$\cap$	Intersection	التقاطع
$\cup$	Union	الاتحاد
+	The addition	عملية الجمع
−	The subtraction	عملية الطرح
·	The Multiplication	عملية الضرب