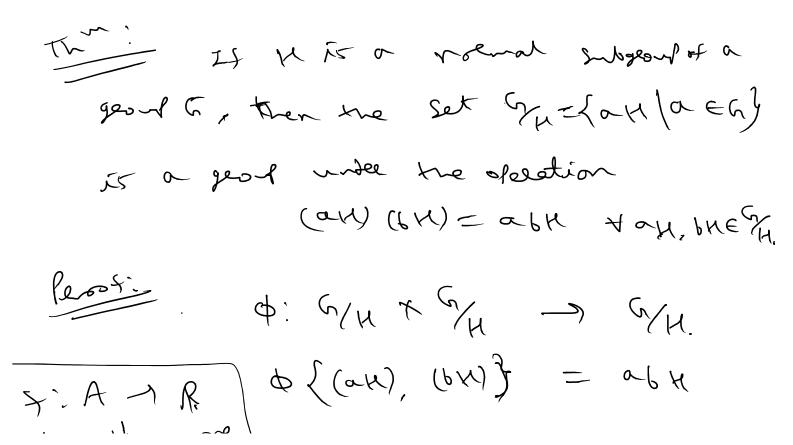
$$\mathcal{E} = (12)(12) \longrightarrow \text{No. of } 2 - Cyder$$
$$= 2 (even)$$
$$\text{Et is an even}$$
leenstation

Chapter 9 Neural subgeoufs and Fracter George:

AK is a normal subgrout of G. Greep subgear of an Abelian Fronte O geoup is renal. ab=ba + abec. ak = Ma. (:ah=ha) KSG, 大人人后. (2)The center Z (G) of a good to is always menal in G. Az is normal in 53 (3) $A_3 = \{ (1), (132), (123) \}$ $S_{3} = (1), (12), (23), (13), (112), (123)$

Facter Group (al Quotient Group):

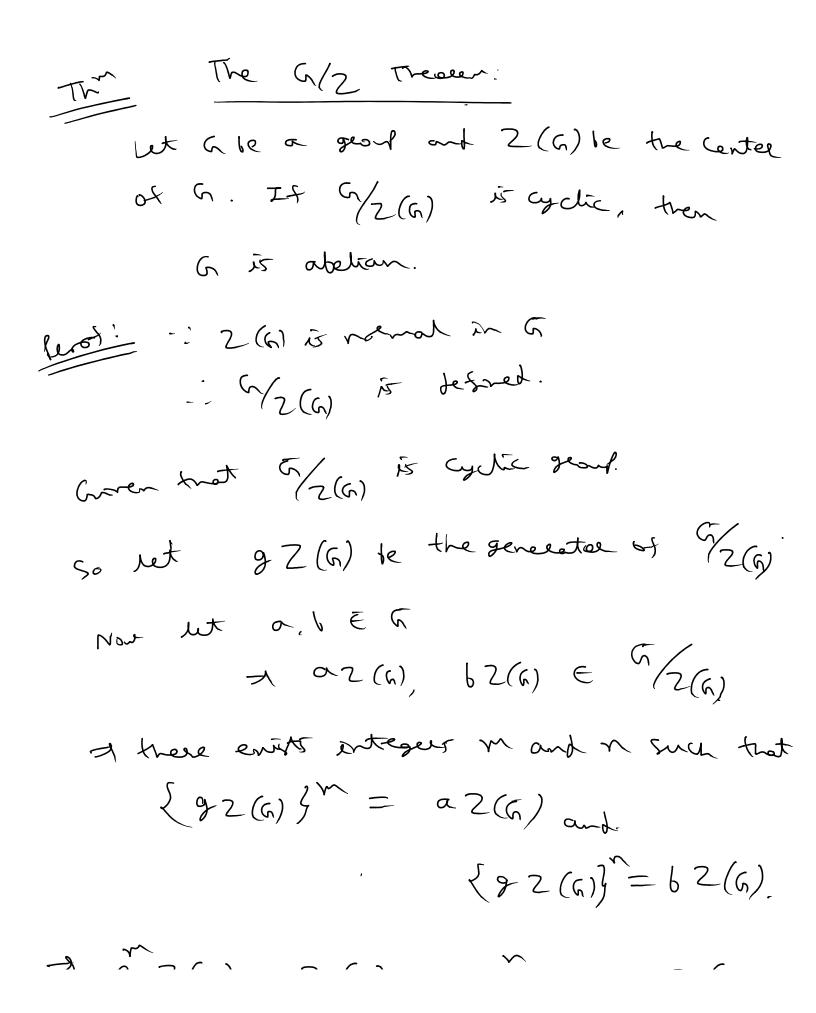


F. A A K
well permet

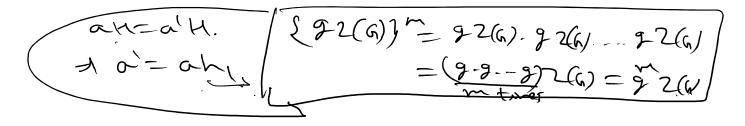
$$x = y$$

 $f(H = f(y))$
 $x = y$
 $f(H = f(y))$
 $x = y$
 $f(H = f(y))$
 $x = y$
 $f(H = f(y))$
 $f(H =$

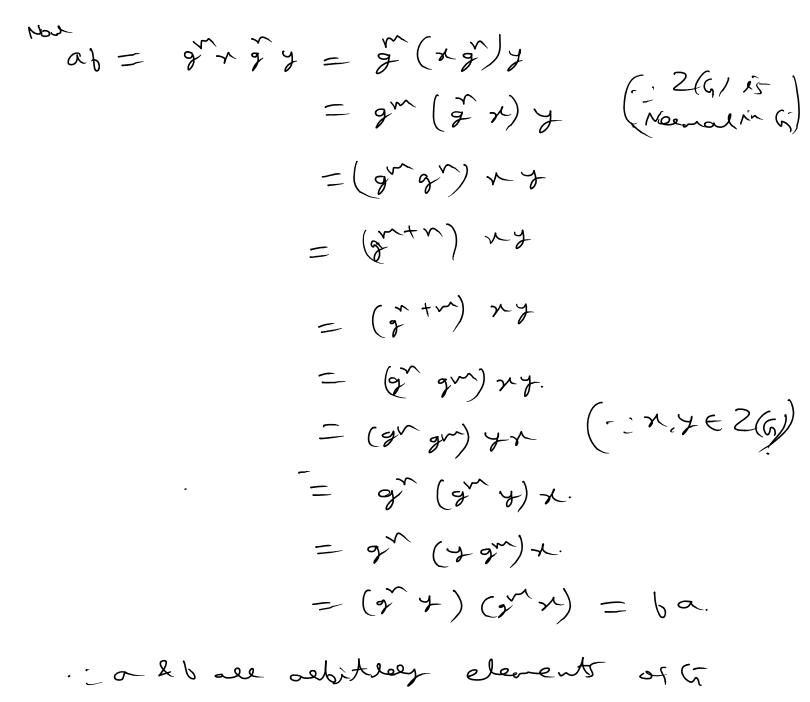
•



- y L(G) = a L(G) at <math>y Z(G) = b Z(G)



 $\Rightarrow \alpha = g + and b = g + f + some x, y \in 2(6)$



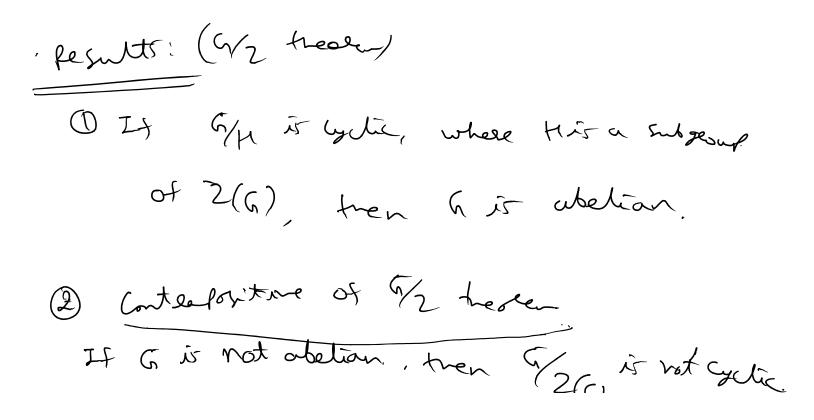
· ab= ba tabe G I GB abetian.

Q. constant the Cayley table for 2/42. $2 = \{0, \pm 1, \pm 2, \pm 1, -..\}$ 55/ 472 = { 0, ± 4, ± 8, ± 12, --- } AR is a Subgeorp of . R. (Home week) "I is abelian of A R is a volument subserver of ? I ZAZ it befined.

 $0+472 = \{0, \pm 4, \pm 8, \pm 12, --- \} = 42.$ $1+472 = \{1,5,9, ..., -3, -7, -11, ...\}$ $2+472 = \{2,6, 10, ..., -2, -6, -10, -..\}$ $3+472 = \{3,7,11, --, -1, -5, -9, -..\}$ $4+972 = \{4, 8, 12, -.., 0, -4, -8, -.\} = 472.$ The distinct left cosets of 972 are 972, 1+97, 2+072 and 3+ 972 only.

Junilouity		=1+9 R	6498=	2+ F R
(42=0+42)	0+472	1+72	2+72	3492
0+972		1+97	2+472	3+42
1+ 472 2+472	1+4R	2+9-R	7+ + R	6+4R
		3842	0+472	1+472
3+ 4 2	1472	0492	(+ + 7)	2+4元.

(a H) (b H) = a b H. (a+42) + (b+42) = & ty 42



Construct the capley table FR 5/K. Q. clearly, k is a subgroup of Dq. Da = { Ro, Rgo, R180, R270, H, V, D, D'Y (xK=kx. V×EDA. M.M. $RoK = \{Ro, R_{180}\} = k.$ Rgo K = { Rgo, Rg 70 } R18 K - { R180, R0 3 = K Repork = { Repork - Rgoy = Rgok. $HK = \{H, V\}$ $VK = \{V, H\} = HK.$ $DK = \{ D, D' \}$ $D' K = \{d, D\} = DK.$

there are fore firstmat left aset of K in Dy handy, K, Rgok, HK and DK. K K Rgok HK DK. K K Rgok MK DK. Hgok Rgok K. DK HK MK HK DK K. Rgok. DK DK HK. Rgok. K