6.05.22 characters of	For $\varphi = \varphi_i - \text{(rreductAle, by Schur's lemma,)}$	Character tables sieki
If $\{\chi_1, \chi_2\}$ are all irraducible complex characters of $\{\chi_1, \chi_2\}$ are all irraducible complex that the space $\{\chi_1, \chi_2\}$ a group $\{\chi_1, \chi_2\}$ a group $\{\chi_1, \chi_2\}$ $\{\chi_1, \chi_2\}$ $\{\chi_2, \chi_3\}$ $\{\chi_1, \chi_2\}$ $\{\chi_1, \chi_2\}$ $\{\chi_2, \chi_3\}$ $\{\chi_3, \chi_4\}$ is an orthonormal system of the space $\{\chi_1, \chi_2\}$ is an orthonormal system of the space $\{\chi_1, \chi_2\}$	for φ=φ; - [vreduction, by Schur's Lemma,  (f) = λ; E, calculate the trusts:  (il) = λ; E, calculate the trusts:	K1 K2 Kj K2 ]
a group of (- of the first in the first in	1 1 2 4 - 5 f(q) t24.(g) = 2 pig/ typ- typ-	X1
then $(\chi_i, \chi_j)_g = \alpha_j = [0, if i \neq j] \Leftrightarrow \varphi_i \neq \emptyset_j$ of the space $ZF(G)$ Conflary 1 - $\{\chi_1,, \chi_s\}$ is an orthonormal system of the space $ZF(G)$ of contract functions on $G \Rightarrow S \leq r = \text{the number of conjugate}$	condition.  The regular representation ( $\Lambda_G$ , $G$ , $G$ )	$\times_{\epsilon} = \frac{1}{\chi_{i_1}} \left( -1 - \frac{1}{2} \chi_{i_1} \left( g_i \right) \right)$
Consecuting ( 13 3 5 2 = the number of conjugant	asked with the time of the second of the	•
dicentral functions of the conjugate classes.	$\forall \varphi$ representation of $G$ , $\chi_{\varphi} = \sum_{i=1}^{K} \chi_{\varphi}^{i} + \chi_{$	x2 that the rows of
desired functions on 6 is constant on conjugate classes.  Classes of 6.  Preof. Central function of on 6 is constant on conjugate classes.		The I orthogonality relation means that the roses of
K. K. 04 8) 55	Let apply if for the regular representation ( ) of $C = \{g   g \in G^{>}\}$ $\Lambda_{G}(g)(x) = gx$ , $\forall g \in G^{-}$	The I orthogonality relation the sence: $z$ this table are orthogonal in the sence: $\sum \chi_{\epsilon}(g)\chi_{\epsilon}(g) = \frac{1}{2} \sum \chi_{\epsilon}(g)\chi_{\epsilon}(g$
independent > 3 < r.  Corollarya. If two representations p and \$ of 6 have equal  Corollarya. If two representations \$ and \$ of 6 have equal	Λ <sub>6</sub> (g)(t) = g.1 = g.	( ~ ~ ) - 1 2 (Cly) (Gl )=1 eeks
A 10 A TI (a D MONOS LILTER CO.C.)	$0 = \Lambda_G^*(f)(i) = \sum_{g \in G} f(g) \Lambda_G(g)(i) = \sum$	( / i,/i) -  G  & to = 1 - x-10.) 7:10:1-de
Corollarya. If this representations (k: \go) and characters: \times = \times + then \( \tilde{\chi} = \tilde{\chi} \). As are multiplications (k: \go) and \( \tilde{\chi} = \chi \tilde{\chi} = \chi \tilde{\chi} \).	1 inapply independent => f(g)=0, 49EG	1 - + > 1Ko 1 x : (90) X : (90 = 2 + 1Ca (90) 1 x : (90) 1 1 190-0cj
Corollary: If then $\varphi = \psi$ .  Cherators: $\chi_{\varphi} = \chi_{\psi}$ then $\varphi = \psi$ .  Cherators: $\chi_{\varphi} = \chi_{\psi}$ then $\varphi = \psi$ .  Right: $\varphi = \chi_{\varphi} = \chi_{\varphi}$ then $\varphi = \chi_{\varphi}$ then $\varphi = \chi_{\varphi} = \chi_{\varphi}$ and $\varphi = \chi_{\varphi} $		$(\lambda_i, \lambda_j) =  G  \mathcal{X}_i(g) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ C_G(g_e) } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G }  K_e  \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \sum_{l=1}^{\infty} \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \delta_{i,j}$ $= \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e)$ $= \frac{1}{ G } \chi_{\mathcal{E}}(g_e) \overline{\lambda_j}(g_e) = \frac{1}{ G } \chi_{\mathcal{E}}(g_e) = \frac{1}{$
Troot of a first one constant of the first o	Consequence. Any i wreducible representation of a commension of the dimension to the multiplisty equal its dimension to the multiplisty equal its dimension to the number of fixed points of the number of fixed points.	$\frac{1}{16} = \frac{1}{16} \left( \frac{1}{16} + \frac{1}{16} \right) = \frac{1}{16} \left( \frac{1}{16} + \frac{1}{16} \right) = \frac{1}{16} \left( \frac{1}{16} + \frac{1}{16} + \frac{1}{16} \right) = \frac{1}{16} \left( \frac{1}{16} + \frac{1}{16$
2 = Xti (Xi, F) = Xi (Vi, F) = Xi (Vi, F) = Xi	regular representation with multiplisty equal to stand point regular representation with multiplisty equal to stand point regular representation with multiplisty equal to stand point regular of fixed point regular regular to the result of the standard point regular regu	Consumer and Market an
$ \begin{array}{lll} \gamma &= k_1 + k_2 + k_3 + k_4 + k_5 + k_5$	of a in its action. When ( acts of 200) [61] 9=1	By rows: M.M = 5/11/10= L  \[ \frac{\chi_{(g_i)}}{\sqrt{\chi_{(g_i)}}} \
γ γ =) R: σο /	maltiplication, it equal (1) = x(1) x (a) = x:(1), q.e.d.	$\sqrt{\frac{1}{2}}\sqrt{\frac{1}{2}}\sqrt{\frac{1}{2}}\sqrt{\frac{1}{2}}\sqrt{\frac{1}{2}}\sqrt{\frac{1}{2}}$
Th.1. 7=3.  The system Xi,, Xi is a laws of ZF(6) (>)  Proof: The system Xi,, Xi is a laws of ZF(6) (>)  Proof: tis closed, it means: if \$\{-\text{ZF(G)}, \(\text{Xii}\)\}_{\text{2}}=0 \Rightarrow \frac{1}{2}=0.	multiplication, it equals $0$ , $\sqrt{\chi} = \frac{1}{2} \left( \frac{1}{2} \left( \frac{1}{2} \left( \frac{1}{2} \left( \frac{1}{2} \right) \right) \right) \left( \frac{1}{2} \left( \frac{1}{2} \left( \frac{1}{2} \right) \right) \left( \frac{1}{2} \left( \frac{1}{2} \left( \frac{1}{2} \right) \right) \left( \frac{1}{2} \left( \frac{1}{2} \right) \right) \left( \frac{1}{2} \left( \frac{1}{$	Th.2. (Second orthogonality relation): $ 7 \times (g) \times (h) = \begin{cases} 1 \times (g) \times (h) = ($
The system X1, 11, X1 is a fams of EF(G) =0 => f=0.  Print: The system X1, 11, X1 is a fams of EF(G), (Xiii) =0 => f=0.  It is closed, it means: if fEZF(G), (Xiii) =0 => f=0.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	( \( \frac{1}{6} \) \( 1
Pract. is closed, it means: if the	i=1 · · · · · · · · · · · · · · · · · · ·	2 / (g) / (h) = 1 0, otherwise.
	Rem. If $(\Psi_1 G_1 V)$ is completely reducible representation. It em $\Psi \cong \oplus \Psi_1$ , $V = \oplus V_1$ , $V_2$ are minimal invariant	
hollowing linear operator	$ \sqrt{10} $ then $ \psi \cong \bigoplus \psi_1,  V = \bigoplus V_1,  V_2 = \bigoplus V_2,  V_3 = \bigoplus V_4,  V_4 = \bigoplus V_4,  V_5 = \bigoplus V_5,  V_6 = \bigoplus V_6,  V_7 = \bigoplus V_7,  V_8 = \bigoplus V_8,  V_8 = \bigoplus$	Pont
for arothery equation following linear operator $\varphi^*(f) = \sum_{g \in G} f(g) f(g) : V \rightarrow V$ .	sues pices.	
Note, the $(\psi \oplus \psi^*(f) = \varphi^*(f) \oplus \psi^*(f)$ .	If we collect together the supposed with the same irreducible representation, we get with the same irreducible representation, we get \\ \times \times \\ \t	ible.
Note, the $(\Psi\oplus \Psi)^*(f) = \varphi(f) \oplus \psi(f)$ .  In matrix form: $(\Psi\oplus \Psi)(g) = \varphi(g)(g) \Rightarrow (\Psi\oplus \Psi)(f) = \varphi(g)(g)$ The operator $(\Psi^*(f))$ is endowerphis of the representation $(\Psi)$ .  In $(\Psi \oplus \Psi)(g) = (\Psi \oplus \Psi)(g) =$		
The corrector (c*/f) is a law or the representation of:	by the unuli plicity of Vi in V	
N1 6 6 9/10 (hgh) = = I (hgh) 4 (hgh) = I (hgh) 4 (hgh) 7	$V = W_1 \oplus \oplus W_2$ , $W_i = \bigoplus_{i \in I} V_{ij}$ , $V_{ij} = V_{ij}$ $W_i \cong V_i \oplus \oplus V_{ij}$ $\Rightarrow$ ki is the multiplicity of $V_i$ in $V_i$ the multiplicity of $V_i$ in $V_i$	
The operator $\varphi^*(\ell)$ is endowerphis of the representation $\varphi$ : $\forall h \in G$ , $\varphi(h) \varphi^*(f) \varphi(h^{\dagger}) = \sum_{g \in G} f(g) \varphi(hgh^{\dagger}) = \sum_{g \in G} f(hgh^{\dagger}) \varphi(hgh^{\dagger}) = \sum_{g \in G} f(a) \varphi(a) = \varphi^*(\ell)$ . $e^{-\frac{1}{2}} \int_{G} f(g) \varphi(hgh^{\dagger}) = \frac{1}{2} \int_{G} f(hgh^{\dagger}) \varphi(hgh^{\dagger}) \varphi(hgh^{\dagger}) = \frac{1}{2} \int_{G} f(hgh^{\dagger}) \varphi(hgh^{\dagger}) \varphi(hgh^{\dagger})$		
= Control	The multiplication &1, ks are uniquely be blig, then the given representation $\psi$ , to if $\psi \cong \bigoplus_{i=1}^{n} k_i \psi_i$ , $\psi \cong \bigoplus_{i=1}^{n} k_i \psi_i$ , then $\psi \cong \psi \otimes k_i = k_i$ , $i=1,$	
· · · · · · · · · · · · · · · · · · ·	Q ≃ ψ ⇔ & τ= li, i=1,., %.	