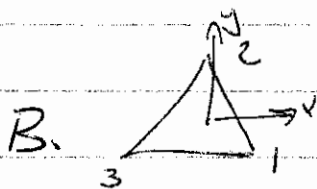


Group Reps Homework \triangleleft Answers

1. Characters are constant on conjugate classes.

$(1\ 3\ 2)$ and $(1\ 2\ 3)$ are conjugate (by $(2\ 3)$)
 $(1\ 2)$, $(1\ 3)$, and $(2\ 3)$ are conjugate (by $(1\ 2\ 3)$)

	id	$(1\ 3\ 2) = \begin{matrix} 1 \rightarrow 3 \\ 3 \rightarrow 2 \\ 2 \rightarrow 1 \end{matrix}$	$(1\ 2) = \begin{matrix} 1 \rightarrow 2 \\ 2 \rightarrow 1 \end{matrix}$
A.	$(1\ 1\ 1)$	$\begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix}$	$\begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}$
character	3	0	1



	id	$(1\ 2\ 3) = \begin{matrix} 1 \rightarrow 2 \\ 2 \rightarrow 3 \\ 3 \rightarrow 1 \end{matrix}$	$(3\ 2)$
	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$	$\begin{pmatrix} \cos \frac{2\pi}{3} & -\sin \frac{2\pi}{3} \\ \sin \frac{2\pi}{3} & \cos \frac{2\pi}{3} \end{pmatrix}$	$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$
char.	2	-1	0

χ_{trivial}	1	1	1
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Note $\chi_A = \chi_B + \chi_{\text{trivial}}$

C. id, $(1\ 3\ 2)$, $(1\ 2\ 3)$ are even permutations, $\chi = 1$
 $(1\ 2)$, $(1\ 3)$, $(2\ 3)$ are odd " , $\chi = -1$

- ctd -

Group Reps HW $\triangle - \triangle$ Ans.

Full character table:

		(12)	
		(13)	
	identity	(1 2 3)	(23)
Trivial	1	1	1
Parity	1	1	-1
χ_B	2	-1	0

Note $\frac{1}{|G|} \sum |\chi_L(g)|^2 = 1$ for each.