

Character Tables of Multiplicity-Free Endomorphism Rings

$G = 3.M_{22}$ (no. 2)

$H = 2^4 : S_5 \rightarrow (M_{22}, 6)$

rank: 10

degree: 693

	O_1	O_2	O_3	O_4	O_5
$1a$	1	1	1	30	30
$21a$	1	1	1	-3	-3
$55a$	1	1	1	9	9
$154a$	1	1	1	-3	-3
$21b$	1	$z3$	$z3^{**}$	15	$15z3^{**}$
$21c$	1	$z3^{**}$	$z3$	15	$15z3$
$105a$	1	$z3$	$z3^{**}$	$-1+b33^*$	$1-2v33^*5+v33^*7$
$105b$	1	$z3^{**}$	$z3$	$-1+b33$	$2-3v33-v33^*5-v33^*7$
$105c$	1	$z3$	$z3^{**}$	$-1+b33$	$-+3v33+2v33^*5+2v33^*7$
$105d$	1	$z3^{**}$	$z3$	$-1+b33^*$	$1+v33^*5-2v33^*7$

	O_6	O_7	O_8	O_9
$1a$	30	120	160	160
$21a$	-3	54	-16	-16
$55a$	9	-6	-8	-8
$154a$	-3	-6	4	4
$21b$	$15z3$	0	20	$20z3$
$21c$	$15z3^{**}$	0	20	$20z3^{**}$
$105a$	$1+v33^*5-2v33^*7$	0	$-2+2r33$	$4-8v33-4v33^*5$
$105b$	$-+3v33+2v33^*5+2v33^*7$	0	$-2-2r33$	$4-4v33-8v33^*5$
$105c$	$2-3v33-v33^*5-v33^*7$	0	$-2-2r33$	$4v33+4v33^*5-4v33^*7$
$105d$	$1-2v33^*5+v33^*7$	0	$-2+2r33$	$-4+8v33+8v33^*5+4v33^*7$

	O_{10}
$1a$	160
$21a$	-16
$55a$	-8
$154a$	4
$21b$	$20z3^{**}$
$21c$	$20z3$
$105a$	$-4+8v33+8v33^*5+4v33^*7$
$105b$	$4v33+4v33^*5-4v33^*7$
$105c$	$4-4v33-8v33^*5$
$105d$	$4-8v33-4v33^*5$

$b33 = (-1 + Sqrt(33))/2$

$$\begin{aligned}
b33^* &= (-1 - Sqrt(33))/2 \\
r33 &= Sqrt(33) \\
v33 &= z33 + z33^4 + z33^{16} + z33^{25} + z33^{31} \\
z3 &= (-1 + \sqrt{-3})/2 \\
z3^{**} &= (-1 - \sqrt{-3})/2
\end{aligned}$$

References

[Lin] S. A. Linton. private communication.