

Character Tables of Multiplicity-Free Endomorphism Rings

$G = 6.M_{22}$ (no. 2)

$H = 2^3 : L_3(2) \rightarrow (2.M_{22}, 4), (3.M_{22}, 3)$

rank: 17

degree: 1980

	O_1	O_2	O_3	O_4	O_5	O_6	O_7	O_8
$1a$	1	1	1	1	1	1	14	14
$21a$	1	1	1	1	1	1	-8	-8
$55a$	1	1	1	1	1	1	8	8
$99a$	1	1	1	1	1	1	-6	-6
$154a$	1	1	1	1	1	1	2	2
$120a$	1	-1	1	-1	1	-1	0	0
$210b$	1	-1	1	-1	1	-1	0	0
$21b$	1	$z3$	$z3^{**}$	1	$z3$	$z3^{**}$	10	$10z3$
$21c$	1	$z3^{**}$	$z3$	1	$z3^{**}$	$z3$	10	$10z3^{**}$
$99b$	1	$z3$	$z3^{**}$	1	$z3$	$z3^{**}$	0	0
$99c$	1	$z3^{**}$	$z3$	1	$z3^{**}$	$z3$	0	0
$105a$	1	$z3$	$z3^{**}$	1	$z3$	$z3^{**}$	$-1-r33$	$2v33+2v33^*5-2v33^*7$
$105b$	1	$z3^{**}$	$z3$	1	$z3^{**}$	$z3$	$-1+r33$	$-2+4v33+4v33^*5+2v33^*7$
$105c$	1	$z3$	$z3^{**}$	1	$z3$	$z3^{**}$	$-1+r33$	$2-4v33-2v33^*5$
$105d$	1	$z3^{**}$	$z3$	1	$z3^{**}$	$z3$	$-1-r33$	$2-2v33-4v33^*5$
$330d$	1	$-z3$	$z3^{**}$	-1	$z3$	$-z3^{**}$	0	0
$330e$	1	$-z3^{**}$	$z3$	-1	$z3^{**}$	$-z3$	0	0

	O_9	O_{10}	O_{11}
$1a$	14	84	84
$21a$	-8	18	18
$55a$	8	18	18
$99a$	-6	4	4
$154a$	2	-12	-12
$120a$	0	0	0
$210b$	0	0	0
$21b$	$10z3^{**}$	36	$36z3$
$21c$	$10z3$	36	$36z3^{**}$
$99b$	0	-14	$-14z3$
$99c$	0	-14	$-14z3^{**}$
$105a$	$2-2v33-4v33^*5$	$3+r33$	$-2-2v33^*5+4v33^*7$
$105b$	$2-4v33-2v33^*5$	$3-r33$	$2-6v33-4v33^*5-4v33^*7$
$105c$	$-2+4v33+4v33^*5+2v33^*7$	$3-r33$	$-4+6v33+2v33^*5+2v33^*7$
$105d$	$2v33+2v33^*5-2v33^*7$	$3+r33$	$-2+4v33^*5-2v33^*7$
$330d$	0	0	0
$330e$	0	0	0

	O_{12}	O_{13}	O_{14}
$1a$	84	336	336
$21a$	18	-60	-60
$55a$	18	-12	-12
$99a$	4	16	16
$154a$	-12	0	0
$120a$	0	0	0
$210b$	0	0	0
$21b$	$36z3^{**}$	48	$48z3$
$21c$	$36z3$	48	$48z3^{**}$
$99b$	$-14z3^{**}$	28	$28z3$
$99c$	$-14z3$	28	$28z3^{**}$
$105a$	$-2+4v33^*5-2v33^*7$	$-18+2r33$	$20-24v33-4v33^*5-16v33^*7$
$105b$	$-4+6v33+2v33^*5+2v33^*7$	$-18-2r33$	$4+12v33-8v33^*5+16v33^*7$
$105c$	$2-6v33-4v33^*5-4v33^*7$	$-18-2r33$	$16-12v33+4v33^*5-20v33^*7$
$105d$	$-2-2v33^*5+4v33^*7$	$-18+2r33$	$-4+24v33+8v33^*5+20v33^*7$
$330d$	0	0	0
$330e$	0	0	0

	O_{15}	O_{16}	O_{17}
$1a$	336	336	336
$21a$	-60	72	72
$55a$	-12	-24	-24
$99a$	16	-24	-24
$154a$	0	12	12
$120a$	0	42	-42
$210b$	0	-24	24
$21b$	$48z3^{**}$	0	0
$21c$	$48z3$	0	0
$99b$	$28z3^{**}$	0	0
$99c$	$28z3$	0	0
$105a$	$-4+24v33+8v33^*5+20v33^*7$	0	0
$105b$	$16-12v33+4v33^*5-20v33^*7$	0	0
$105c$	$4+12v33-8v33^*5+16v33^*7$	0	0
$105d$	$20-24v33-4v33^*5-16v33^*7$	0	0
$330d$	0	0	0
$330e$	0	0	0

$$r33 = Sqrt(33)$$

$$v33 = z33 + z33^4 + z33^{16} + z33^{25} + z33^{31}$$

$$z3 = (-1 + \sqrt{-3})/2$$

$$z3^{**} = (-1 - \sqrt{-3})/2$$

References

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