

Character Tables of Multiplicity-Free Endomorphism Rings

$G = 3.M_{22}$ (no. 1)

$H = 2^4 : A_5 \rightarrow (M_{22}, 3)$

rank: 13

degree: 1386

	O_1	O_2	O_3	O_4	O_5	O_6
$1a$	1	1	1	15	96	96
$21a$	1	1	1	15	-36	-36
$55a$	1	1	1	15	12	12
$154a$	1	1	1	-3	0	0
$231a$	1	1	1	-3	0	0
$21b$	1	$z3$	$z3^{**}$	0	-24	-24 $z3$
$21c$	1	$z3^{**}$	$z3$	0	-24	-24 $z3^{**}$
$105a$	1	$z3$	$z3^{**}$	0	$9+r33$	$-8+6v33-2v33^*5+10v33^*7$
$105b$	1	$z3^{**}$	$z3$	0	$9-r33$	$2-12v33-4v33^*5-10v33^*7$
$105c$	1	$z3$	$z3^{**}$	0	$9-r33$	$-10+12v33+2v33^*5+8v33^*7$
$105d$	1	$z3^{**}$	$z3$	0	$9+r33$	$-2-6v33+4v33^*5-8v33^*7$
$231b$	1	$z3$	$z3^{**}$	0	-6	-6 $z3$
$231c$	1	$z3^{**}$	$z3$	0	-6	-6 $z3^{**}$

	O_7	O_8	O_9
$1a$	96	120	120
$21a$	-36	10	10
$55a$	12	-6	-6
$154a$	0	12	12
$231a$	0	-8	-8
$21b$	-24 $z3^{**}$	40	40 $z3$
$21c$	-24 $z3$	40	40 $z3^{**}$
$105a$	$-2-6v33+4v33^*5-8v33^*7$	-3 $b33^*$	$-3v33-3v33^*5+3v33^*7$
$105b$	$-10+12v33+2v33^*5+8v33^*7$	-3 $b33$	$3-6v33-6v33^*5-3v33^*7$
$105c$	$2-12v33-4v33^*5-10v33^*7$	-3 $b33$	$-3+6v33+3v33^*5$
$105d$	$-8+6v33-2v33^*5+10v33^*7$	-3 $b33^*$	$-3+3v33+6v33^*5$
$231b$	-6 $z3^{**}$	-5	-5 $z3$
$231c$	-6 $z3$	-5	-5 $z3^{**}$

	O_{10}	O_{11}	O_{12}
$1a$	120	240	240
$21a$	10	20	20
$55a$	-6	-12	-12
$154a$	12	-12	-12
$231a$	-8	8	8
$21b$	$40z3^{**}$	20	$20z3$
$21c$	$40z3$	20	$20z3^{**}$
$105a$	$-3+3v33+6v33^5$	$9-3r33$	$-12+18v33+6v33^5+6v33^7$
$105b$	$-3+6v33+3v33^5$	$9+3r33$	$-6+12v33^5-6v33^7$
$105c$	$3-6v33-6v33^5-3v33^7$	$9+3r33$	$-6-6v33^5+12v33^7$
$105d$	$-3v33-3v33^5+3v33^7$	$9-3r33$	$6-18v33-12v33^5-12v33^7$
$231b$	$-5z3^{**}$	-10	$-10z3$
$231c$	$-5z3$	-10	$-10z3^{**}$

	O_{13}
$1a$	240
$21a$	20
$55a$	-12
$154a$	-12
$231a$	8
$21b$	$20z3^{**}$
$21c$	$20z3$
$105a$	$6-18v33-12v33^5-12v33^7$
$105b$	$-6-6v33^5+12v33^7$
$105c$	$-6+12v33^5-6v33^7$
$105d$	$-12+18v33+6v33^5+6v33^7$
$231b$	$-10z3^{**}$
$231c$	$-10z3$

$$-3b33 = (3 - 3 * Sqrt(33))/2$$

$$-3b33^* = (3 + 3 * Sqrt(33))/2$$

$$r33 = Sqrt(33)$$

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

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

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

References

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