COMPOSITIO MATHEMATICA

J. E. CREMONA

Addendum and errata "Hyperbolic tessellations, modular symbols, and elliptic curves over complex quadratic fields"

Compositio Mathematica, tome 63, n° 2 (1987), p. 271-272

<http://www.numdam.org/item?id=CM_1987__63_2_271_0>

Compositio Mathematica 63: 271–272 (1987)

Addendum and errata

Hyperbolic tessellations, modular symbols, and elliptic curves over complex quadratic fields

J.E. CREMONA
Department of Mathematics, University of Exeter, North Park Road, Exeter EX4 4QE, United Kingdom

Received 27 January 1987; accepted 25 February 1987

Addendum

On page 315 of the original paper [1], a table of twelve "missing conductors" was given. These were ideals **f** for which we expected to find an elliptic curve with conductor **f** and certain specific traces of Frobenius, as predicted by the Main Conjecture on page 298, but had not yet found such a curve. Twelve such curves have now been found, and, in Table 1, we give their details to complete the tables in [1]. (We reiterate that the tables of curves in [1] are not closed under isogeny.) For each curve, we give its conductor **f**, and the coefficients a_1, a_2, a_3, a_4 and a_6 of a minimal Weierstrass equation.

In the case of $\mathbf{f} = (17 + 11i)$, the curve above corresponds to the first newform in $V^+(17 + 11i)$ listed in Table 3.2.2 of [1]; a curve corresponding to the second newform was already given in Table 3.2.3.

Table 1.

Field	**f**	a_1	a_2	a_3	a_4	a_6
$\mathbf{Q}(i)$	$(17 + 11i)$	-1	$-1 - i$	$-i$	$55 - 67i$	$-31 + 57i$
$(i = \sqrt{-1})$	$(19 + 8i)$	$1 + i$	$-1 - i$	1	$-19 + 4i$	$-4 + 13i$
$\mathbf{Q}(\theta)$	$(6 + 6\theta)$	θ	$1 - \theta$	θ	$4 - 3\theta$	$4 - 2\theta$
$(\theta = \sqrt{-2})$	$(5 + 10\theta)$	θ	-1	$1 + \theta$	$2 - 3\theta$	$5 - \theta$
	$(12 + 7\theta)$	$-1 - \theta$	θ	-1	$13 + 9\theta$	$40 + 10\theta$
	$(3 + 12\theta)$	θ	$1 - \theta$	$1 + \theta$	-3θ	$1 - 2\theta$
$\mathbf{Q}(\varrho)$	$(14 + 7\varrho)$	$1 - \varrho$	$1 - \varrho$	$-\varrho$	$11 - 7\varrho$	$-5 - 9\varrho$
$(\varrho = \frac{1}{2}(1 + \sqrt{-3}))$	(21)	-1	-1	$-\varrho$	$-3 + 4\varrho$	$1 - 4\varrho$
$\mathbf{Q}(\alpha)$	(14)	-1	$-2 + \alpha$	$-\alpha$	$-10 + \alpha$	$-8 - \alpha$
$(\alpha = \frac{1}{2}(1 + \sqrt{-7}))$						
$\mathbf{Q}(\alpha)$	(6α)	$1 - \alpha$	$-1 - \alpha$	$-\alpha$	$-9 + 5\alpha$	$15 - 2\alpha$
$(\alpha = \frac{1}{2}(1 + \sqrt{-11}))$	$(2 + 7\alpha)$	$1 + \alpha$	α	$1 + \alpha$	$-4 + \alpha$	-3
	$(6 + 6\alpha)$	α	$-1 - \alpha$	0	4	0

Thanks are due to R.G.E. Pinch, who found the curves with $\mathbf{f} = (3 + 12\theta)$ and $\mathbf{f} = (2 + 7\alpha)$. The rest were found by the author using programs written in Algol68, run on the ICL 2980 computer at the South West Universities Regional Computing Centre.

Errata

- Table 3.2.3: The line with $\mathbf{f} = (16)$ should have a $\surd$ in the column headed "CM(1)?".
- Table 3.5.2: The line with $\mathbf{a} = (3 - 6\alpha)$ should read

$$(3 - 6\alpha) \quad -1 \quad -1 \quad +\ -4 \quad 4 \quad 0 \quad 0 \quad -6 \quad -2 \quad -2 \quad 6 \quad 6 \quad -4 \quad -4$$

- Table 3.5.3: The four lines with $\mathbf{f} = (8\alpha)$ should be linked in the last column (by 2-isogenies).

References

1. J.E. Cremona: Hyperbolic tessellations, modular symbols, and elliptic curves over complex quadratic fields. *Comp. Math.* 51 (1984) 275–323.