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Addendum and errata

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

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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 **f** $= (3 + 12\theta)$ and **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 **f** $= (16)$ should have a $\surd$ in the column headed "CM(1)?".
- Table 3.5.2: The line with **a** $= (3 - 6\alpha)$ should read

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

- Table 3.5.3: The four lines with **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.