ERRATA: *SYLVESTER'S PROBLEM AND MOCK HEEGNER POINTS*

SAMIT DASGUPTA AND JOHN VOIGHT

This note gives some errata for the article *Sylvester's problem and mock Heegner points* [1]. Thanks to Guido Bosco.

(1) Section 2.1, description of MAut: this should be a semi-direct product, so
$$\mathrm{MAut}(X_0(243)) = \langle w, v^{-1}wv\rangle \rtimes \langle v\rangle \simeq S_3 \rtimes \mathbb{Z}/3\mathbb{Z}.$$

(2) Proof of Proposition 4.4.2, after (4.4.3), "modular automorphism": the matrix A is not in $\mathrm{MAut}(X_0(243))$, so it is not a modular automorphism by our definition; but it does define an automorphism of $X(\Gamma)$, as explained in section 2.1.

(3) Proposition 4.4.2: the element $\alpha_\sigma = 1 - 2p\omega^2$ works for $p \equiv 4 \pmod 9$; for $p \equiv 7 \pmod 9$, we take instead $\alpha_\sigma = 1 - 2p\omega$, with the same conclusion.

(4) Proposition 4.4.2: should be
$$(wv^2wv)t^2v^2 = (wv^{-1}wv)t^2v^2$$
(instead of $(wvwv^2)t^2v^2$), giving the matrix $A = \begin{pmatrix} 4473 & 25 \\ 12879 & 72 \end{pmatrix}$.

(5) (5.2.3): the term $f(p(\omega-7)/9)$ appears in the denominator, so we cannot directly apply Proposition 5.2.1. Instead, write
$$f(p(\omega-7)/9)x(Q) = e^{\pi i/6}\sqrt[6]{3}f(p(\omega-7)/27)f(p\omega/9)$$
and apply Proposition 5.2.1 to get
$$f((\omega-7)/9)x(Q)^p \equiv (e^{\pi i/6}\sqrt[6]{3})^p f((\omega-7)/27)f(\omega/9) \pmod{p\overline{\mathbb{Z}}}.$$
Then use the evaluation $f((\omega-7)/9) = -\omega^2/\sqrt[3]{9}$ in the proof of Lemma 5.2.4 to see that this value is invertible to obtain the equality.

References

[1] Samit Dasgupta and John Voight, *Sylvester's problem and mock Heegner points*, Proc. Amer. Math. Soc., to appear.

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