ERRATUM FOR "ELLIPTIC CURVES, MODULAR FORMS, AND THEIR L-FUNCTIONS"

Dear readers,

If you find a typo, error, or omission in the book "Elliptic Curves, Modular Forms, and their L-functions", please let me know by email at

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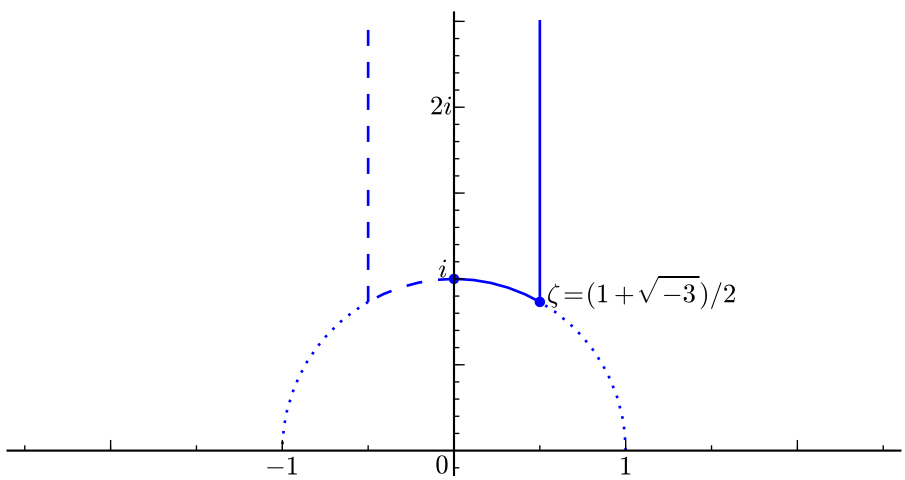
and it will be added to this document. Thank you!

Known typos, errors and omissions:

(1) **Page 18.** In addition to Yuri Matiyasevich, Hilary Putnam and Julia Robinson, another mathematician, **Martin Davis**, should have been mentioned as one of the contributors to the solution of Hilbert's 10th problem.

(2) **Page 86.** The fundamental region that appears in **Figure 3** on p. 86 is not the correct region, and needs to be replaced by this one.



The fundamental domain $\mathcal{F}(1)$ for the quotient $\mathbb{H}/\Gamma(1)$.

(3) **Page 108.** The definition 4.2.6 of *old form* and $M_k^{\text{old}}(\Gamma(N))$ is not complete. In Remark 4.2.5 (see also Exercise 4.5.9), we learned of two ways that one form can be "old", but only one way is listed in Definition 4.2.6. The definition should be, instead, this one:

Definition (Definition 4.2.6)**.** *Let N, $k \geq 1$ be integers. A modular form $f(z)$ of weight k for $\Gamma(N)$ is said to be an* **old form** *if one of the following holds:*

(a) *there is a divisor $M \geq 1$ of N such that $f(z)$ is a modular form in the space $M_k(\Gamma(M))$, or*

(b) *there is a divisor $d \geq 1$ of N and a modular form $g(z) \in M_k(\Gamma(N/d))$ such that $f(z) = g(dz)$, or*

(c) *$f(z)$ is a $\mathbb{C}$-linear combination of modular forms as in* (a) *or* (b).
The $\mathbb{C}$-linear subspace of all old forms of $M_k(\Gamma(N))$ is denoted by $M_k^{old}(\Gamma(N))$. We also define

$$S_k^{old}(\Gamma(N)) := M_k^{old}(\Gamma(N)) \cap S_k(\Gamma(N)).$$

Example. For instance, if $N = pq$, where p, q are distinct primes, then $M_k^{\mathrm{old}}(\Gamma(N))$ is the $\mathbb{C}$-linear space of all modular forms

$$f(z) + g(pz) + h(qz) + k(pqz)$$

where $f \in M_k(\Gamma(1)) + M_k(\Gamma(p)) + M_k(\Gamma(q))$, $g \in M_k(\Gamma(q))$, $h \in M_k(\Gamma(p))$ and $k \in M_k(\Gamma(1))$.