Misprints in "An Introduction to the Theory of Numbers"

G.H. Hardy and E.M. Wright

Sixth Edition

Many of the misprints recorded here were notified to me by Nick Hamblet, Zhang Migyao, Jorg Jimenez, Wolfgang Seewald, Martijn de Vries and Somjit Datta, to whom I am very grateful. Thanks are also due to Josie Park, who helped prepare this list for me.

DRH-B

Page ix, Line 13. For 'addictive' read 'additive'

Page ix, Line 16 from bottom. For 'out programme' read 'our programme'

Page xx, Chapter XXV. This should read 'ELLIPTIC CURVES (by Joseph H. Silverman)'

Page 2, First footnote. For §§1.7 read §1.7

Page 5, Line 10. Replace 50,847,478 by 50,847,534

Page 5, Line 11. Add footnote to 'not known individually' saying: Tables to 10^{12} are now (2012) available, see
`http://www.primos.mat.br/indexen.html`

Page 40, Line 1. For QQ' read QQ''

Page 55, Line 7. For $G''(x) + n^2G(x)$ read $G''(x) + \pi^2G(x)$

Page 55, Line 8 from bottom. For 'Gronnigen' read 'Groningen' and for 'Nordhoff' read 'Noordhof'

Page 62, Line 2 from bottom. For $t + tm'$ read $t + m'$

Page 67, Line 9 from bottom. For p^r read ρ^r

Page 69, Line 5. For $hn + h'n$ read $hn' + h'n$

Page 69, Line 8. For $v\overline{h}n' + v'h'n$ read $v\overline{h}n' + v'\overline{h}'n$

Page 70, (5.6.4). For $n'\overline{h}'$ read $n\overline{h}'$

Page 70, Line 6. For $vn'\overline{h}' + v'n\overline{h}'$ read $vn'\overline{h} + v'n\overline{h}'$

Pages 72 to 76. On page 72 the equation labels (5.8.4) and (5.8.5) should be deleted, and the subsequent labels (5.8.6) to (5.8.15) should be replaced by (5.8.4) to (5.8.13) respectively.

Page 73, Line 8 from bottom. For $2\sum_{k=1}^{16}\epsilon_k$ read $\sum_{k=1}^{16}\epsilon_k$

Page 79, Line 3 from bottom. For M_N read $(M)_N$

Page 94, Line 2. For $(\frac{2}{p}) = 1$, read $(\frac{2}{p}) = -1$,

Page 94, Line 5. For

$$(-1)^{\left[\frac{1}{8}(p^2+1)\right]}$$

read

$$(-1)^{\frac{1}{8}(p^2-1)}$$

Page 94, Line 5. For

$$(-1)^{\left[\frac{1}{8}(p^2-1)\right]}$$

read

$$(-1)^{\frac{1}{8}(p^2-1)}$$

Page 94, Line 5 from bottom. For $\frac{1}{3}p < a\frac{1}{2}p$ read $\frac{1}{3}p < a < \frac{1}{2}p$

Page 95, Theorem 97. For '7 is a ...' read '5 is a ...'

Page 97, (6.13.1). For $kq = p[\frac{kp}{p}] + u_k$ read $kq = p[\frac{kq}{p}] + u_k$

Page 101, Bottom line. For 'Leveque' read 'LeVeque'

Page 109, Line 15. For '(2) polynomial' read 'polynomial'

Page 114, Line 4. For $\equiv \frac{(p-1)}{x} (\mathrm{mod}\, p^2)$ read $\equiv \frac{(p-1)!}{x} (\mathrm{mod}\, p^2)$

Page 115, Line 16. For $(nx\frac{n^2x^2}{2!} + \ldots)$ read $(nx + \frac{n^2x^2}{2!} + \ldots)$

Page 119, Line 12. For (1938) read (1937)

Page 125. The treatment of (8.4.1) is erroneous. Instead one should argue as follows. If $f(x) \equiv 0 (\mathrm{mod}\, p^2)$ then $f(x) \equiv 0 (\mathrm{mod}\, p)$, whence $x^{\frac{1}{2}(p-1)} - 1 \equiv 0 (\mathrm{mod}\, p)$, by Theorem 70. Conversely, if $x^{\frac{1}{2}(p-1)} \equiv 1 (\mathrm{mod}\, p)$, then we may apply Theorem 78 with $m = x^{\frac{1}{2}(p-1)}$ to deduce that $f(x) \equiv 0 (\mathrm{mod}\, p^2)$.

By Theorem 8.3 we see that $x^{\frac{1}{2}(p-1)} \equiv 1 (\mathrm{mod}\, p)$ exactly when x is a quadratic residue of p. This produces $\frac{1}{2}(p-1)$ roots in the range $1 \leq x \leq p$, and hence $\frac{1}{2}p(p-1)$ roots of (8.4.1) in the range $1 \leq x \leq p^2$.

Page 126, (8.5.2). For $f_m(x) = x^{\phi(m)} - 1$ read $f_m(x) \equiv x^{\phi(m)} - 1$

Page 127, (8.5.4). For

$$(x^{p-1} - 1)^{p^a - 1} (\mathrm{mod}\, p^a) \quad \text{read} \quad (x^{p-1} - 1)^{p^{a-1}} (\mathrm{mod}\, p^a)$$

Page 127, (8.5.6). For

$$(x^2 - 1)^{2^a - 2} (\mathrm{mod}\, 2^a) \quad \text{read} \quad (x^2 - 1)^{2^{a-2}} (\mathrm{mod}\, 2^a)$$

Page 135, (8.9.2). For $\frac{2^{p-2}}{p}$ read $\frac{2^p - 2}{p}$

Page 140, Last Line. For $\sum_{N+1}^{\infty} \frac{|a-b|}{10^n}$ read $\sum_{N+1}^{\infty} \frac{|a_n - b_n|}{10^n}$

Page 166, (10.1.4). For

$$a_0 + \frac{1}{[a_0, a_1, \ldots, a_n]} = [a_0, [a_0, a_1, \ldots, a_n]]$$

read

$$a_0 + \frac{1}{[a_1, a_2, \ldots, a_n]} = [a_0, [a_1, a_2, \ldots, a_n]]$$

Page 167, Line 6. In the denominator, for $(a_m q_{m-1} + q_{m-1})$ read $(a_m q_{m-1} + q_{m-2})$

Page 171, Line 2. For $[a_{N-1}] - 1$ read $[a'_{N-1}] - 1$

Page 173, Line 6. For $a + \xi_2$ read $a_2 + \xi_2$

Page 184, Line 2. For $\frac{c\delta}{d_{k-1}}$ read $\frac{c\delta}{q_{k-1}}$

Page 186, Line 6. For $ap_{n-2}^2 + bq_{n-1}q_{n-1} + cq_{n-1}^2$ read

$$ap_{n-1}^2 + bp_{n-1}q_{n-1} + cq_{n-1}^2$$

Page 186, Line 9. For $A_n y^2 + B_n y + C$ read $A_n y^2 + B_n y + C_n$

Page 190, Line 5 from bottom. For $(u_n, v_{n+1}) = 2$ read $(u_n, v_n) = 2$

Page 201, Line 11. For $\frac{5}{3} = -\frac{1}{3}$ read $\overline{\frac{5}{3}} = -\frac{1}{3}$

Page 202, Line 10. For $\frac{p_s}{q_s}$ read $\frac{p}{q}$

Page 202, (11.4.1). For $\frac{K(\xi)}{q_n}$ read $\frac{K(\xi)}{q^n}$

Page 203, Line 15. For $(a_{n+1} + 1)q_{n-1}$ read $(a_{n+1} + 1)q_n + q_{n-1}$

Page 211, Line 8. For $1 - a'_n \frac{1}{a'_n}$ read $1 = a'_n \frac{1}{a'_n}$

Page 219, Line 3 from bottom. For $r!e^x - u_r(x)x^r - e^x h^r - u_r(x)x^r$ read $r!e^x - u_r(x)x^r = e^x h^r - u_r(x)x^r$

Page 224, (11.14.3). For $d\alpha 1, \ldots, d\alpha n$ read $d\alpha_1, \ldots, d\alpha_n$

Page 226, Line 5. For $\phi(\alpha_l + x)$ read $\phi(\alpha_t + x)$
Page 230, Line 22. For $\frac{1}{2}(-1 + i\sqrt{3})$ read $\frac{1}{2}(-1 - i\sqrt{3})$

Page 234, Lines 7 and 8. This should be '... (a) the order of the factors, and (b) ambiguities between associated primes.'

Page 238, Theorem 215. This should read 'The expression of an integer (not zero or a unity) as a product of primes is unique, apart from the order of the primes, and ambiguities between associated primes.' Similarly for Theorem 220 on Page 243.

Page 240, Line 9. For $N\gamma n$ read $N\gamma_n$

Page 260, (13.7.11). For $u = a^7 + a^5b^2 - 2a^3b^4 + 3a^2b^5 + ab^6$ read

$$u = a^7 + a^5b^2 - 2a^3b^4 - 3a^2b^5 + ab^6$$

Page 260, Lines 1, 3, 5 and 6 from bottom. Replace ω by w each time.

Page 261, Line 1. For 'and ω in' read 'and w in'

Page 265, Line 8 from bottom. For p. 20 read p. 24

Page 269, Line 6. For $\xi = a + b\omega$ read $\xi = a + b\tau$

Page 292, Line 15. For ω^{2p_i-1} read ω^{p_i-1}

Page 292, Line 16. For $\omega^{2^{(q_j+1)}}$ read $\omega^{2(q_j+1)}$

Page 292, Line 3 from bottom. Replace 'for any p' by 'for any odd p'

Page 302, Line 5 from bottom. For $1 - k\frac{k(k-1)}{1.2} \ldots$ read $1 - k + \frac{k(k-1)}{1.2} \ldots$

Page 304, Line 13. Insert (16.3.1) before $\phi(n) = \ldots$

Page 313, Line 7 from bottom. The w in 'when' should be lower case.

Page 315, Line 13. For $A - Bi = i^{-t}(1 + i)^{\alpha_1}(1 - i)^{\alpha_2} \ldots$ read

$$A - Bi = i^{-t}(1 - i)^{\alpha_1}(1 + i)^{\alpha_2} \ldots$$

Page 316, Line 14 from bottom. For Szegőo read Szegő

Page 316, Line 6 from bottom. For Holder read Hölder

Page 317, Line 7. For 'Neilsen' read 'Nielsen'

Page 323, Line 10. For $= 1 + 2^s + 3^{-s} + \cdots$ read $= 1 + 2^{-s} + 3^{-s} + \cdots$

Page 324, Line 4. For $\ldots \gamma_\omega \omega^{-s} \ldots = \alpha_u \beta_v \gamma_\omega \ldots n^{-s}$, read

$$\ldots \gamma_w w^{-s} \ldots = \alpha_u \beta_v \gamma_w \ldots n^{-s}$$

Page 324, (17.4.2). For $\sum_{uvw\ldots=n} \alpha_u \beta_v \gamma_\omega \ldots$ read $\sum_{uvw\ldots=n} \alpha_u \beta_v \gamma_w \ldots$

Page 327, Line 2 from bottom. For

$$\sum_{n=1}^{\infty} \frac{1}{n^s} \sum_{r=1}^{\infty} \frac{n^k}{n^s}$$

read

$$\sum_{n=1}^{\infty} \frac{1}{n^s} \sum_{n=1}^{\infty} \frac{n^k}{n^s}$$

Page 338, Line 16. For $x^m.x^m = x^{m+n}$ read $x^m.x^n = x^{m+n}$

Page 339, Line 7. For $\sum_{n|N}^{\infty} a_n$ read $\sum_{n|N} a_n$

Page 344, (18.1.2). For $\ldots \prod_{i=1}^{r} (\frac{a_i+1}{p_i^{a_i\delta}})$ read $\ldots \prod_{i=1}^{r} (\frac{a_i+1}{p_i^{a_i\delta}})$

Page 349, Fig 8. The horizontal line $y = 2$ should be added.

Page 350, Theorem 321. For 'THEOREM 321:' read 'THEOREM 321. If $n > 1$ then'

Page 352. In Theorem 329 the second inequality should be $\leq$ rather than $<$

Page 352, Line 3 from bottom. For $\ldots n \prod_{p|n} \frac{1-p^{-a-1}}{1-p-1}$ read $\ldots n \prod_{p|n} \frac{1-p^{-a-1}}{1-p^{-1}}$

Page 359, Line 12. For 'Voronöi' read 'Voronoï'

Page 359, Line 16 from bottom. For 'has been improved by various authors' read 'has been improved under the assumption of the Riemann Hypothesis by various authors'

Page 360, Line 4. For 'Health-Brown' read 'Heath-Brown'

Page 368, line 15. For 'Macmahon' read'MacMahon'. Similarly on page 379, line 2, on page 380, line 10 from bottom, and on page 383, line 6.

Page 369, Line 14. For 'THEOREM 346' read 'THEOREM 347'

Page 372, Last line. For $\ldots Q(x)R(x, z^{-1})$, read $\ldots Q(x)R(x, z)R(x, z^{-1})$,

Page 375, (19.9.2). The second factor should be $1 + x^{2kn+k+l}$ rather than $1 - x^{2kn+k+l}$

Page 389, Line 1. For (19.14.14) read (19.14.4)

Page 391, Line 14 from bottom. For '*Eureka* 8 (1994) 10–15' read '*Eureka* 8 (1944) 10–15'

Page 411, Line 3 from bottom. For $\ldots + 3u_2(1 - \cos 3\theta) + \ldots$, read

$$\ldots + 3u_3(1 - \cos 3\theta) + \ldots,$$

Page 416, Line 5 from bottom. For *Quadrat* read *Quadraten*

Page 417, Bottom line. For 'inttegers' read 'integers'

Page 434, Line 2. For $-2x^3$ read $+2x^3$

Page 478, Line 4 from bottom. For THEOREM 430 read THEOREM 433

Page 464, Line 2. For 'Theorem 6,' read 'Theorem 6.' (so that the comma is replaced by a full stop).

Page 471, Line 8. For A_1 read A_0.

Page 495, Line 3. For $\pi(2x) - 2\pi(x) = O\{\pi(x)\}$ read $\pi(2x) - 2\pi(x) = o\{\pi(x)\}$

Page 499, Lines 10 and 11. For $\ldots\{-c\sqrt{\log c}\}$ read $\ldots\{-c\sqrt{\log x}\}$

Page 499, Line 5 from bottom. For 'amd' read 'and'

Page 5.22, Notes for §23.1. In the first line, *Sitzungs berichte* should be *Sitzungsberichte*

Page 522, Notes for §23.3. For 'Szőucs' read 'Szücs'

Page 525, Line 5. For $|\xi_1|$ read $|\xi_r|$

Page 543. For 'THEOREM 1' read 'THEOREM 460'

page 547, Line 8. For '*Mathematica*' read '*Mathematika*'

Page 550, line 13. For 'defintely' read 'definitely'

Page 551, Line 9. For $u \in K$ read $u \in k$

Page 553, (25.2.6). For $+(B - \beta^2)$ read $+(B - \nu^2)$

Page 568, (25.5.4). In the second line the expression $(x_p x P_Q + A)$ should be $(x_p x_Q + A)$

Page 572. (25.5.27) For $\leq \frac{1}{4}h(P_{i-1}) + C_3$ read $\leq \frac{1}{2}h(P_{i-1}) + C_3$

Pages 574–576. Delete the $*$ from Theorems 478*, 479*, 480* and 481*

Page 578, Line 2. For $x^3 + 2y^3 = A$ read $x^3 + dy^3 = A$

Page 584, line 6 from bottom. For $\mathbb{Z}[W, Z]$ read $\mathbb{Z}[W, V]$

Page 585, Line 3. For $\gcd(2, v)$ read $\gcd(w, v)$

Page 587, (25.10.3). For $16a^{2p}b^{2b}(a^p + b^p)^2$ read $16a^{2p}b^{2p}(a^p + b^p)^2$

Page 590, Line 10 from bottom. For '*problem* (ECLDP)' read '*problem* (ECDLP)'

Page 590, Line 2 from bottom. For 'finanical' read 'financial'.

Page 591, Line 8 from bottom. For '1997' read '1977'

Page 591, Line 15 from bottom. For 'eliptic' read 'elliptic'

Page 592, Line 4 from bottom. For 'Springer, 1997, 1 15' read 'Springer, 1997, 1–15'

Page 592, Line 2 from bottom. For 'sungly' read 'snugly'

Page 605. Note that the 'Index of Names' is taken from the 5th Edition, and does not include additional references now appearing in the 6th edition.

Page 607, First column. For 'LeVeque, 101, 597' read 'LeVeque, 101, 599'

Page 608 First column. For 'Rogers, 383, 385, 391, 392, 548, 597' read

Rogers, L.J. 383, 385, 391, 392
Rogers, C.A. 548, 599

Page 608, Second column. For 'Voronöi' read 'Voronoï'