

Errata for *Advanced Mathematics for Applications*

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p. 77, Eq. (3.7.4), replace 4^2 by $4k^2$

p. 78, Eq. (3.7.7): since $n \geq 1$, $|n|$ can be replaced by n

p. 136, 2nd line after (5.4.5), read $\sigma \simeq (b_0 + b_1)/(1 - b_1 c)$

p. 174 Eq (7.2.2): read “ $V_{\ell m}$ ” in place of “ $v_{\ell m}$ ”

p. 175 Eq. (7.2.10) read $\cos m\phi$ and $\sin m\phi$ in place of $\cos \phi$ and $\sin \phi$

p. 179 Eq. (7.3.6) read “ R_{nk} ” in place of “ $R_{\ell m}$ ”

p. 187 Eq (7.9.8) should read

$$R_\ell = q \left[r_{<}^\ell r_{>}^{-\ell-1} - a^{2\ell+1} b^{-\ell-1} r^{-\ell-1} \right]$$

and Eq (7.9.9) should read

$$u(r, \theta) = \frac{q}{r_{>}} \sum_{\ell=0}^{\infty} \left(\frac{r_{<}}{r_{>}} \right)^\ell P_\ell(\cos \theta) - \frac{a}{br} \sum_{\ell=0}^{\infty} \left(\frac{a^2}{br} \right)^\ell P_\ell(\cos \theta)$$

p. 220, next to the line of Example 8.2.1: read $\int_0^\infty F_n dx = 1/2$

p. 223 line after (8.2.8), replace “From $0 \leq |F - 1|^2$ we have ...” by “From $0 \leq (|F| - 1)^2$ we have ...”

p. 237 Eq. (8.7.25): in both summations the starting value of the index n is 0, not 1

p. 239 replace μ by μ^2 in the right-hand side of (8.7.38) and in the left-hand side of (8.7.39).

p. 244 line 4 after (9.2.4), replace “From $0 \leq |f - 1|^2$ we have ...” by “From $0 \leq (|f| - 1)^2$ we have ...”

p. 247, replace 2nd line after (9.3.6) by “inside the interval $[-\pi, \pi]$, i.e., not including $x = \pm\pi$.”

p. 251, in the first line of Theorem 9.5.1 read “ $p - 1$ ” in place of “ p^{-1} ”.

p. 254, line after (9.7.9) read “the sum of the series at $x = 0$ and π equals $1/2$, so that the right-hand side of (9.7.9) vanishes as expected”.

p. 263 In equation (9.10.3) replace $(-1)^k$ by $(-1)^{k-1}$.

p. 309, line 1 replace $v = a + b/z + \dots$ by $v' = a + b/z + \dots$

p. 313, line after (12.5.2), read “which, in particular, extends (12.5.1) when $\alpha = 0$.”

p. 328 Eq (3.6.3): after the comma read $|\mu| < 1$.

p. 353, line after (15.1.32), read U_b in place of $-U_b$.

p. 384, in (15.4.46) replace “ $a - x < b$ ” by “ $a < x < b$ ”.

p. 398 line before (15.7.13), replace $x < y$ by $x > y$.

- p. 402 The footnote should read “This result is valid provided $f(\mathbf{x})$ decreases faster than $|\mathbf{x}|^{-1}$ at infinity.”
- p. 409 line after (16.1.48) replace by “provided the given functions $p(\mathbf{x})$ and $q(\mathbf{x})$ are regular in Ω .”
- p. 420, 2nd line before (17.1.5), change to “the corresponding point Q on the unit”.
- p. 425 Eq. (17.3.8), read $-\partial v/\partial x$ in place of $\partial v/\partial x$.
- p. 426 lines 1-2 change to “by taking $\mathbf{V} = (v, u, 0)$ ”
- p. 426 in the first integral in (17.3.11) replace $2ibx$ by $2iabx$
- p. 427 in Eq. (17.3.14) read $\cos 2abx$ in place of $\cos 2bx$.
- p. 430 Insert the factor $1/(2\pi i)$ in front of the integral in the left-hand side of (17.3.26).
- p. 430 2nd line after (17.3.26), replace $w(z)$ by $2\pi i w(z)$.
- p. 440 line after (17.5.15), replace $|1 - z_1|^{-1}$ by $|1 - z_1|$.
- p. 444 first line of Eq. (17.5.30), insert a factor e^t in the integrand
- p. 450, line after (17.6.9) replace by “the first two relations are valid up to $2N\pi i$ with”
- p. 450, 2nd line after (17.6.10), change to “but we must take $(-z)^2 = e^{i\pi/2}$ ”
- p. 451 4th line of Table 17.4, replace by $\log z_1/z_2 = \log z_1 - \log z_2 + 2N\pi i$, $N = 0, \pm 1$
- p. 463 In the denominators in the right-hand side of equations (17.9.15) and (17.9.16) replace a by β
- p. 464 insert a factor i to multiply the second integral in (17.9.21)
- p. 465 In the last term of (17.9.23) read $f(x)e^{iax}$ in place of $f(x)$.
In the second line after (17.9.24) delete the words “with the last term”.
In (17.9.25) read $(\frac{1}{4}e^{-3i\pi/4} + \frac{1}{4}e^{-9i\pi/4})$ in place of $(4e^{3i\pi/4} + 4e^{9i\pi/4})$
- p. 467 In the line after (17.9.28) replace “ $f \rightarrow 0$ sufficiently fast and” by “ $\epsilon \log \epsilon |f| \rightarrow 0$ and”
In the first integral in (17.9.30) replace x by z and, in the last term, $i\pi$ by $-\pi^2$
- p. 545 2nd line of (19.2.15), change to “ $1/n \leq x \leq 1$ ”
- p. 551 Eq. (19.3.13): in the first line read (v, u) in place of (u, v) ; in the second line read $\|u + i^n v\|^2$ in place of $\|u + i^n v\|$
- p. 559 4th line after (19.4.6), change “avoiding” to “adding”
- p. 583, 2 lines before Theorem 20.5.1, replace m by $m + 1$
- p. 584 In (20.6.4) replace $\sqrt{n/\pi}$ by $n/\sqrt{\pi}$
- p. 585, the second fraction should read $n/[\pi(n^2x^2 + 1)]$
- p. 587, change all d_n to d_k in (20.6.25) and (20.6.26)
- p. 588 Eq. (20.7.1), in the left-hand side read $\delta(\mathbf{y} - \mathbf{x})$ in place of $\delta(\mathbf{x} - \mathbf{y})$
- p. 602: the lower limit of the summation index in (20.11.15) is $\ell = 0$, not $\ell = 1$
- p. 602, line after (20.11.15), in the summation change $(\sin kx)/n$ to $(\sin kx)/k$
- p. 621 Eq. (21.1.2), the order of the terms in the right-hand side should be switched
- p. 626 3rd line from bottom, replace “convergent” by “converse”; in the next line replace $\{\mathbf{B}u_n\}$ by $\{\mathbf{B}_n u\}$
- p. 627, 2nd line, replace $\{\mathbf{B}u_n\}$ by $\{\mathbf{B}_n u\}$
- p. 627, In the statement of Theorem 21.2.4, to *The inverse operator $\mathbf{B}^{-1}$ of a bijective (p. 647) bounded linear operator from one Banach space into another one is bounded.*
- p. 644, insert an equal sign in (21.4.2): $|\lambda|^2(u, u) = (\mathbf{U}u, \mathbf{U}u)$
- p. 658, lines 3-4 after Theorem 21.7.2, delete the words “compact operators (section 21.3) which in particular includes”