ERRATA AND ADDITIONS: *SECOND EDITION*

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COMPLEX VARIABLES,
INTRODUCTION AND APPLICATIONS

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Corrections and small additions; asterisks (*) indicate more important corrections

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p.8 Problem 4. Spelling: change: "Estabilish" to "Establish"

p. 34 An Alternative form to Theorem 2.1.1:

Theorem 2.1.1 If the function $f(z) = u(x, y)+iv(x, y)$ is differentiable at a point $z = x+iy$ of a region in the complex plane, then u, v satisfy the Cauchy-Riemann conditions (Eq. (2.1.4)) at $z = x + iy$. If u_x, u_y, v_x, v_y are continuous and satisfy the Cauchy-Riemann conditions at $z = x + iy$ then $f'(z)$ exists.

p.48 4 lines from top, replace "On the other hand, if we took.." by "On the other hand we reiterate, if we took.."

p.99 3 lines from top. Replace: "If f is a differentiable function..." by "If f is a continuously differentiable function..."

(on same page) In Theorem 2.6.7: change: "...bounded by a simple closed contour C, then at any interior point z" to "...bounded by a simple closed contour C, and if f is continuous on C, then at any interior point z"

p.113 Line 3 change: "Theboundedness..." to "The boundedness..."

(on same page) In the two equations following line 3, change: "$|b_1(z)| < B$ hence $|b_n(z)| < BM^{n-1}$" to "$|b_1(z)| \leq B$ hence $|b_n(z)| \leq BM^{n-1}$"

p.114 Problem 5b replace $R < |Rez| \leq 1$ by $R < Rez \leq 1$

p.145 In Example 3.5.2 replace "Describe the singularities of the function" by "Describe the singularity of the function at $z = 0$"

p.148 3 lines above Eq. (3.5.5) after "... ...$f(z) \to 0$ as $r \to 0$." add: "Also for $\theta = \pm\pi/2, |f(z)| = 1$."

(on same page) 2 lines above Eq. (3.5.5) change "... namely, $r = (1/R)\cos\theta$ (i.e the points..." to "...namely, $r = (1/R)\cos\theta, R \neq 0$, (i.e., the points..."

(on same page) last two lines, change: "Thus $|f(z)|$ may take on any positive value other than zero by the appropriate choice of R" to "Thus $|f(z)|$ may take on any positive value in the neighborhood of $z = 0$".

p.181 In Theorem 3.7.3: change: "... simply connected domain D, then the linear..." to "... simply connected domain D containing z_0, then the linear..."

p.185 line after Eq. (3.7.41), before: "($z = 0$ can be translated to $z = z_0$ if we wish)" insert: "$z \neq 0, \omega_{m,n}$"

(on same page) line after Eq. (3.7.43), before "The function ..." insert: "Alternatively, by taking the derivative of Eq.(3.7.42) w satisfies "$w'' = 6w^2 - \frac{g_2}{2}$".

p.186 line immediately after Eq. (3.7.45) insert (no new paragraph): "Also note that w_1 satisfies the second order ODE $w_1'' = 2k^2 w_1^3 - (1 + k^2)w_1$."

p.198 2nd line above Example 3.8.2 change "... time T with ..." to "... distance with ..."

Section 4.1 Take care to note that the contours C_j are to be distinguished from the Laurent coefficients C_j. In most places it is clear. One can replace the contours C_j by $\mathcal{C}_|$ esp. on p. 207,208 to be clear.

p.206 3 lines from bottom replace "...contour lying in D." by "...contour lying in D enclosing z_0."

p.212 One can eliminate the equation number (4.1.14) (but do not eliminate the equation).

p.257 Problem 14, 3rd line, change: "...where C_R is the ..." to "...where C_R is the outside part of the ..."

p.258 Problem 14, part (c) change the sign of the right hand side: from "$= \pi b_{n+2}$" to "$= -\pi b_{n+2}$"

p.266 problem 6. Change the last two lines from: "Consider the two functions $-f_0$ and

$f(z) - f_0$, and use ... to deduce that $f(z) = f_0$" to: "Consider the two functions $-f_0$ and $f(z)$. Then Rouché's Theorem implies that the functions $-f_0$, $f(z) - f_0$ have the same number of zeroes."

p.268 line 10-11-12 from top, omit: "(sometimes referred to as bounded mean oscillations (BMO))"; also omit "(i.e. in BMO)" in the following line.

p.270 In Eq. (4.5.10) the term $\delta(x - x_0)$ in the second integral (which has a $lim_{\epsilon\to 0}$) should be replaced by $\Delta(x - x_0; \epsilon)$

p.272 In Eq. (4.5.17) middle line replace $e^{ikx'}g(x')$ by $e^{-ikx'}g(x')$

(on same page) 2 lines after Eq. (4.5.18) replace $f(x) = \delta(x - x')$ by $f(x) = \delta(x)$; then in the 3rd line of the following paragraph replace "... evaluating Eq. (4.5.17) at $x = 0$: " by "..evaluating Eq. (4.5.18) at $x = 0$: "

p.563 First equation in 2nd paragraph for $\Phi(k)$. Inside integral (add a left parens.): change $\frac{f(l)}{X^+(l)l-k)}$ to $\frac{f(l)}{X^+(l)(l-k)}$