Complex Analysis for Mathematics and Engineering: 5th Edition
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Typos for the First Printing

Chapter 1–Text

- **Section 1.1**
  - Page 31
    Figures 1.16 and 1.17 should be reversed

Chapter 1–Answer Section

- **Section 1.2**
  - Page 582, problem 5a (top of page), line 2
    "Theorem 1.2" should be "Theorem 1.1"
- **Section 1.3**
  - Page 582, problem 1e.
    Replace $\sqrt{(x-1)^2+y^2}$ with $(x-1)^2+y^2$.
- **Section 1.4**
  - Page 584, problem 9
    The answer should be, "The negative real numbers and the number zero. Prove this!"
- **Section 1.5**
  - Page 585, problem 13
    "exercise (1)" should read "exercise(11)"

Chapter 2–Text

- **Section 2.2**
  - Page 69, problem 7
    The inequality "$\frac{\pi}{4} < 0 < \frac{\pi}{3}$" should read "$\frac{\pi}{4} < \theta < \frac{\pi}{3}$"
- **Section 2.3**
  - Page 79, problem 19
    "Let $|g(z)| \leq M$" should read "Let $|g(z)| < M$"

Chapter 2–Answer Section

- **Section 2.1**
  - Page 586, problem 7e, line 3
    The word "pargs" should be "parts"
- **Section 2.4**
  - Page 589, problem 1a
    The expression "$\frac{\pi}{4} < \phi \frac{\leq \pi}{2}$." should read "$\frac{\pi}{4} < \phi < \frac{\pi}{2}$."

Chapter 3–Text

- **Section 3.2**
  - Page 111, problem 6
    The expression "$\mathbf{F}(z) = f(z)$" should be "$\mathbf{F}(z) = \overline{f(z)}$"
  - Page 112, problem 16b
    Replace$\frac{1}{2}[u_x - v_y + i(y_x + u_y)] = 0$ with $\frac{1}{2}[u_x - v_y + i(v_x + u_y)] = 0$.

Chapter 3–Answer Section

- **Section 3.1**
  - Page 590, problem 1c
    The fraction "$\frac{3s}{(z+2)^2}$" should be "$\frac{3}{(z+2)^2}$"

Chapter 4–Answer Section

- **Section 4.2**
  - Page 593, problem 5, second line
    Change "f_2" to "f_{-2}"
- **Section 4.3**
  - Page 594, problem 1
    Delete the first sentence, so the answer begins with, "By Theorem 4.12,"

Chapter 9–Text

- **Section 9.2**
  - Page 363, second line up from the bottom of the page
    Replace the three occurences of "$Y[z]$" with "$Y(z)$". It should read:
    "$z^2(Y(z) - 1 - 5z^{-1}) - 4(z(Y(z) - 1)) + 4(Y(z)) = 0$"

- Page 365, second line of the page
  Replace the three occurances of "$Y[z]$" with "$Y(z)$". It should read:
  "$z^2(Y(z) - 1 - 5z^{-1}) - 4(z(Y(z) - 1)) + 5(Y(z)) = 0$"
- Page 365, third line up from the bottom of the page
  Replace the three occurances of "$Y[z]$" with "$Y(z)$" It should read:
  "$z^2(Y(z) - 1 - 0z^{-1}) - 4(z(Y(z) - 1)) + 5(Y(z)) = \frac{z}{z-1-i} + \frac{z}{z-1+i}$"
- Page 369
  The first line should read "$a = \frac{\sqrt{2}}{3}$"
- Page 369, second line in the displayed formula for ϕ should read
  "$\phi = \arctan(\frac{\sqrt{b-a^2}}{a}) = \arctan\left(\frac{3}{\sqrt{2}}\sqrt{\frac{4}{9} - \left(\frac{\sqrt{2}}{3}\right)^2}\right) = \arctan(1) = \frac{\pi}{4}$"
- In the next displayed formula for $y_h[n]$ the multiples $\frac{\pi}{3}$ need to be changed to$\frac{\pi}{4}$. It should read
  "$y_h[n] = c_1\left(\frac{2}{3}\right)^n \cos(\frac{\pi}{4}n) + c_2\left(\frac{2}{3}\right)^n \sin(\frac{\pi}{4}n)$"
- Page 371, problem 2 is to consist of the first two parts(a) and (b) printed in the book in Exercise 2 (a) and (b). It should read:
  2 (a). Solve $y[n+2] + y[n] = 0$ with $y[0] = 1$ and $y[1] = 0$.
  2 (b). Solve $y[n+2] + y[n] = 0$ with $y[0] = 0$ and $y[1] = 1$.
- Page 371, problem 3 is to consist of the two parts printed in the book as problem 2 parts (c) and (d), that is
  Exercise 3 part (a) is printed in the book as the existing Exercise 2 part (c)
  Exercise 3 part (b) is printed in the book as the existing Exercise 2 part (d). It should read:
  3 (a). Solve $y[n+2] - \sqrt{2}y[n+1] + y[n] = 0$ with $y[0] = 2$ and $y[1] = \sqrt{2}$.
  3 (b). Solve $y[n+2] - \sqrt{2}y[n+1] + y[n] = 0$ with $y[0] = 0$ and $y[1] = \sqrt{2}$
- Pages 371–372
  Renumber the problems that are now numbered problems 3 through 13.
  Renumber problem 3 to be problem 4
  Renumber problem 4 to be problem 5
  etc.
  Renumber problem 12 to be problem 13
  Renumber problem 13 to be problem 14
- Comment regarding problems for Section 9.2.
  There should now be 14 problems, and the existing answers are consistent with the above changes.

- **Section 9.3**

- Page 377, Example 9.22, the first displayed formula for $y[n]$ in the solution
  The multiples $\frac{\pi}{3}$ need to be changed to be $\frac{\pi}{4}$. It should read:
  $y[n] = c_1\left(\frac{2}{3}\right)^n \cos(\frac{\pi}{4}n) + c_2\left(\frac{2}{3}\right)^n \sin(\frac{\pi}{4}n) + \frac{9}{\sqrt{13}}\cos\left((\frac{\pi}{4}n + \arctan(\frac{3}{2})\right)$.
  Then in the next line change the multiples $\frac{\pi}{3}$ to $\frac{\pi}{4}$. It should read:
  Since $\lim_{n\to\infty}(c_1\left(\frac{2}{4}\right)^n \cos(\frac{\pi}{4}n) + c_2\left(\frac{2}{3}\right)^n \sin(\frac{\pi}{4}n)) = 0$,

- Page 381, line 1
  Change ω_S to f_S. It should read "frequency f_S that is ..."
- Page 381, line 3
  Change ω_S to $\omega_S = \frac{2\pi}{f_S}$. It should read "... with period $\omega_S = \frac{2\pi}{f_S}$."

Chapter 11–Text

- **Section 11.5**
  - Page 452 Near the bottom of Example 11.17
    Change (11-14) to (10-26) . It should read:
    "If an explicit solution is required, then we can use Formula (10-26) . . ."
  - Page 453, problem 3
    Replace "$T(0, y) = 10$, for $y < 1$" with "$T(0, y) = 10$, for $y > 1$."
  - Page 454, problem 5
    Replace "$T(x, y) = 0$, for $\frac{-\pi}{2} < x < \frac{\pi}{2}$" with $T(x, 0) = 0$, for $\frac{-\pi}{2} < x < \frac{\pi}{2}$."
- **Section 11.7**
  - Page 472, the last line of Example 11.2
    Delete an occurrence of the letter u. It should read
    "and their images $\Psi(u, v)$ =constant under the mapping $w = S(z = z + \frac{1}{z}$"
- **Section 11.8**
  - Page 480, eighth line up from the bottom of the page
    Change "x axis" to "u axis"
  - Page 480, third line up from the bottom of the page
    Ddelete the phrase "on the imaginary axis." It should read
    "by $c_1 = -h + i(1 + h)b$ will pass through the points $z_2 = 1$ and $z_4 = -1 - 2h$ . . ."
  - Page 480, second line up from the bottom of the page
    Cchange the notation from z_4 to z_4^*
  - Page 481, line 2.
    Replace the word "cardioid" with the phrase "cardioid-like curve"
  - Page 482, fourth line
    Change "$\frac{1}{r}e^{i\theta}$" to "$\frac{1}{r}e^{-i\theta}$"
  - Page 482, middle of the page, third displayed equation from the bottom
    Change "$\frac{a}{z}$"to "$\frac{ai}{z}$"
  - Page 482, two lines down in the last displayed equation
    In the radical change "$4 - z^2$" to "$4 - a^2$"
  - Page 484, problem 2a.
    Replace '$\frac{4u^2}{\left(r+\frac{1}{r}\right)^2} + \frac{4v^2}{\left(r-\frac{1}{r}\right)^2} = 1$" with "$\frac{u^2}{\left(r+\frac{1}{r}\right)^2} + \frac{v^2}{\left(r-\frac{1}{r}\right)^2} = 1$"

- Page 484, problem 2b.
  Replace "$\frac{u^2}{\cos^2\theta} - \frac{v^2}{\sin^2\theta} = 1$" with "$\frac{u^2}{4\cos^2\theta} - \frac{v^2}{4\sin^2\theta} = 1$"
- Page 485, problem 6
  Replace the word "cardioid" with the phrase "cardioid-like curve"
- Page 485, problem 7
  Replace the word "cardioid" with the phrase "cardioid-like curve."

- **Section 11.9**

  - Page 490, the last displayed system of equations below Figure 11.72.
    In the left equation change "$A\frac{-\pi}{2}$" to "$A\frac{-i\pi}{2}$"

- **Section 11.11**

  - Page 509
    Replace "$F(z) = \lim_{a\to 0} \frac{\log(z)-\log(z-a)}{2a}$" with "$F(z) = \lim_{a\to 0} \frac{\log(z+a)-\log(z-a)}{2a}$"

Chapter 11–Answer Section

- **Section 11.9**

  - Page 619, problem 3
    Replace "$f\,'(z) = A(z+1)^{\frac{1}{2}}(z-1)^{\frac{1}{2}}$" with "$f\,'(z) = A(z+1)^{\frac{1}{2}}(z-1)^{-\frac{1}{2}}$"
  - Page 619, problem 9
    Replace "$x_2 =$" with "$x_2 = 0$"

Chapter 12–Text

- **Section 12.3**

  - Page 535 Problems 2–5 should be combined into one problem numbered 2 with parts a,b,c.

- **Section 12.4**

  - Page 539, Table 12.1, row 5 (Frequency shifting)
    Replace "$\mathfrak{F}(e^{-iw_0t}U(t))$" with "$\mathfrak{F}(e^{iw_0t}U(t))$" (i.e., no negative exponent)
  - Page 540, problem 7
    Replace "$\mathfrak{F}\left(\frac{i\sin\pi t}{1-t^2}\right)$" with "$\mathfrak{F}\left(\frac{\sin\pi t}{t^2-1}\right)$"
  - Page 541, problem 9
    Replace "$\frac{1-|w|}{4\pi}$" with "$\frac{1-|w|}{4}$"

- **Section 12.6**

  - Page 553,problem 7
    Replace "$t-1+e^{t}$" with "$t-1+e^{-t}$"

- **Section 12.7**
  - Page 557, line 5
    Replace "$1 - \cos t$" with "$1 + \cos t$"
- **Section 12.8**
  - Page 562, problem 8
    Replace "$\ln \frac{s^2}{s^2+1}$" with "$\frac{-1}{2} \ln \frac{s^2}{s^2+1}$"

Chapter 12–Answer Section

- **Section 12.5**
  - Page 621, problem 1
    Replace "$(0+0i) = \frac{-1}{\sigma+i\tau} = \frac{1}{s}$" with "$(0+0i) - \frac{-1}{\sigma+i\tau} = \frac{1}{\sigma+i\tau} = \frac{1}{s}$"
- **Section 12.10**
  - Page 624, problem 15
    Replace "$\mathcal{L}(e^t)\mathcal{L}(\cos t)$" with "$\mathcal{L}(e^{-t})\mathcal{L}(\cos t)$"