

# ERRATA

## PDEs of Applied Mathematics: 3/E

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#### Page

#### Correction

The expression (Line 10) refers to the tenth line from the top including equations on the indicated page, while (Line 10B) refers to the tenth line from the bottom on the indicated page in the book.

- 45: (Line 23B)** Replace " $p < R$ " by " $p \leq R$ ".
- 46: (Line 10)** Replace " $i = 10..10$ " by " $i = -10..10$ ", that is, insert minus sign as shown.
- 49: (Line 5B)** Replace "and  $x = 0$ ," by "and  $x = 1$ ," (at the end of the line).
- 52: (Line 2)** Replace " $p < R$ " by " $p \leq R$ ".
- 60: (Line 1B)** Replace " $p(x) < R$ " by " $p(x) \leq R$ ".
- 102: (Line 15)** Replace "two examples" by "an example".
- 168: (Line 5B)** Replace "The PDE" by "(The PDE", i.e., insert a left parenthesis.
- 170: (Line 9B)** Insert "*ClassSyst* classifies a" before "system of", i.e., put the given expression at the beginning of the sentence.
- 216: (Line 7)** Replace " $c^2 u_t(x, t)$ " by " $c^2 u(x, t)$ ", that is, delete the subscript.
- 267: (Line 8B)** Replace " $(1/2l) \int_{-l}^l f(t) \exp(i\pi kt/l)$ ." by " $(1/2l) \int_{-l}^l f(t) \exp(i\pi kt/l) dt$ ." That is, insert " $dt$ " as shown.
- 283: (Line 11)** Replace "Example 7.9" by "Section 7.4".
- 285: (Line 8)** Replace " $\xi$ " by " $\zeta$ " twice on this line.
- 286: (Line 19B)** Replace "Example 7.9" by "Section 7.4".
- 286: (Line 7B)** Replace "Example 7.9" by "Section 7.4".
- 309: (Line 14)** Replace " $\exp\{i[\pm\omega(\lambda)t - \lambda x]\}$ " by " $\exp\{i[\pm\omega(\lambda)t - \lambda x]\}$ ", that is, delete the left parenthesis "(".
- 323:** In Equation (5.8.19) replace " $e^{-(\lambda_1^2 c^2 t - \lambda_2^2 c^2 t)}$ " by " $e^{-(\lambda_1^2 c^2 t + \lambda_2^2 c^2 t)}$ ", that is, replace the second minus sign by a plus sign.
- 329: (Line 7B)** Replace "values" by "points".
- 355: (Line 2)** Replace "satisfies (6.4.9)" by "satisfies (6.4.10)".
- 357: (Line 16B)** Replace "Define the region by  $R$ " by "We define the region  $R$ ".
- 398:** In Equation (6.8.1) replace " $\rho F(\mathbf{x}, t)$ " by " $\rho(\mathbf{x})F(\mathbf{x}, t)$ ".
- 423: (Line 18B)** Replace " $K(\xi, \mathbf{x})$ " by " $K(\xi; \mathbf{x})$ ". (Insert a ";".)
- 444: (Line 7)** Replace "Let  $K(\mathbf{x}; \xi)$ " by "Let  $M_k(\mathbf{x})$ ".
- 444: (Line 10)** Replace "the  $M_k(\mathbf{x})$  are" by "the  $\lambda_k$  are".
- 459: (Line 1)** Replace " $\partial^2 K(x, \xi)/\partial x^2$ " by " $\partial^2 K(x; \xi)/\partial x^2$ ". (Insert a ";".)

- 461: (Line 5B)** Replace "(c)  $u(0, t) = 1$ ," by "(c)  $u_x(0, t) = 1$ ,".
- 469: (Line 12)** Delete the "=" sign. That is, replace " $= -\frac{1}{2}$ " by " $-\frac{1}{2}$ ".
- 471: (Line 17B)** Replace ", where  $\omega$  is the frequency and  $k = \omega/c$  represents the time-harmonic acoustic pressure, satisfies" by " $(\omega$  is the frequency and  $k = \omega/c$ ), represents the time-harmonic acoustic pressure and satisfies".
- 472: (Line 2)** Replace "number negative" by "number of negative".
- 472: (Line 9B)** Replace " $x, y \rightarrow \infty$ " by " $|x|, |y| \rightarrow \infty$ ".
- 474:** In each of the Exercises 7.4.11 and 7.4.12, replace " $u(x, y, z, t)$ " by " $u(x, y, t)$ " wherever it appears. That is, delete the  $z$  variable. (The problems are two-dimensional.)
- 487: (Lines 5-1 B)** Replace " $(x, y, \xi, \eta)$ " by " $(x, y; \xi, \eta)$ ". This expression occurs 6 times on these lines. (Replace the second comma by a semi-colon.)
- 493: (Line 2B)** Replace " $N_j$ " by " $\lambda_j N_j$ ".
- 498: (Lines 15-14 B)** Replace "there no restrictions are" by "there are no restrictions".
- 498: (Lines 14B)** Replace " $w$ " by " $w(\mathbf{x})$ ".
- 503: (Line 6B)** Replace "in (8.1.52)" by "in (8.1.51)".
- 508: (Line 12B)** Replace "8.1.20" by "(8.1.20)". Insert "(".
- 513: (Line 1B)** Replace "sp" by "so".
- 524: (Line 10B)** Replace " $\xi > 0$ " by " $\tau > 0$ ".
- 535: (Line 5)** Replace " $|u_1(x, t) - u_2(x, t)| < \epsilon, \quad x = 0, \quad t = 0, \quad x = l, \quad |u_1(x, t) - u_2(x, t)| < \epsilon,$ " by " $|u_1(x, t) - u_2(x, t)| < \epsilon, \quad x = 0, \quad t = 0, \quad x = l$ , then  $|u_1(x, t) - u_2(x, t)| < \epsilon,$ ". (Close the space and insert "then" as shown.)
- 539: (Line 1B)** Replace "0. This equation" by "0, which can".
- 540: (Line 4)** Replace " $\cos(\sqrt{\lambda})$  since  $\sec(\sqrt{\lambda}) = 1/\cos(\sqrt{\lambda})$ ." by " $\cos(\sqrt{\lambda}l)$  since  $\sec(\sqrt{\lambda}l) = 1/\cos(\sqrt{\lambda}l)$ ".
- 547:** In Equation (8.5.44) replace " $x' \frac{\partial}{\partial x} + y' \frac{\partial}{\partial y} + z' \frac{\partial}{\partial z}$ " by " $x' \frac{\partial}{\partial x} + y' \frac{\partial}{\partial y} + z' \frac{\partial}{\partial z}$ ". That is replace " $d$ " by " $\partial$ " three times.
- 548: (Line 10B)** Replace "(8.5.62)" by "(8.5.50)".
- 558: (Line 6B)** Replace " $= 0$ " by " $= 0$ ".
- 562: (Line 4B)** Replace " $0$ " by " $0$ ".
- 563: (Line 7B)** Replace " $\mathbf{H}$ " by " $\mathbf{H}(\mathbf{x}, t)$ ".
- 586: (Line 2)** Replace " $|\partial_G$ " by " $|\partial_{\hat{G}}$ ". (Insert a caret.)
- 592: (Line 9)** Replace "Example 10.15" by "Section 10.3".
- 596: (Line 14)** Replace "Solve the Dirichlet problem using the boundary perturbation:" by "Use the boundary perturbation approach to solve the problem:".
- 596: (Line 15B)** Replace "problem." by "problem:".
- 652: (Line 3B)** Replace "T he" by "The".
- 659: (Line 8)** Replace "by a Parabola" by "by a Parabolic Cylinder". (This must also be changed in the Contents section at the beginning of the book on Page xvii, Line 14B.)
- 716: (Line 12B)** Replace " $Bu$ " by " $Bu(x, t)$ ".
- 734: (Line 5)** Replace "descents, the" by "descents or the".

**771: (Line 6B)** Replace "increment, by 0.01)," by "increment) by 0.01,".  
**785: (Line 14)** Replace " $a_{ij}$ " by " $a_{i,j}$ ".  
**785: (Line 15)** Replace " $a_{ii}$ " by " $a_{i,i}$ ".  
**787: (Line 7B)** Replace "2] otherwise," by "2, otherwise".  
**800: (Line 16B)** Replace " $\mathbf{e}(n) = 0$ " by " $\mathbf{e}(k) = \mathbf{0}$ ".  
**835: (Line 6B)** Replace " $\gamma(x, y)u(x, y)$ " by " $\omega(x, y)u(x, y)$ ".  
**872: (Line 11B)** Replace "aboundary" by "a boundary".  
**881:** In Equation (12.3.11) replace "184,800" by "184800".  
**881:** In Equation (12.3.11) replace "69,300" by "69300".  
**881: (Line 5B)** Replace " $m$ -elements" by " $m$  elements".  
**903: (Line 13-12B)** Replace " $VL, [\frac{1}{6}, \frac{1}{6}], [\frac{2}{3}, \frac{1}{6}], [\frac{1}{3}, \frac{1}{3}], [\frac{1}{6}, \frac{2}{3}], [0, 0], [\frac{1}{2}, 0], [1, 0], [\frac{1}{2}, \frac{1}{2}], [0, 1], [0, \frac{1}{2}]$ ." by " $VL, [\frac{1}{6}, \frac{1}{6}], [\frac{2}{3}, \frac{1}{6}], [\frac{1}{3}, \frac{1}{3}], [\frac{1}{6}, \frac{2}{3}], [0, 0], [\frac{1}{2}, 0], [1, 0], [\frac{1}{2}, \frac{1}{2}], [0, 1], [0, \frac{1}{2}]$ ." That is, insert an additional set of square brackets as shown.  
**923:** In "Free space Green's function" the two entries each for "heat equation" and "wave equation" should be combined in a single list as "heat equation, 463, 481" and "wave equation, 466, 480".  
 Also, the entry for "Klein-Gordon equation" should appear just before the entry for "Laplace's equation" in the list.