Corrections to "Partial Differential Equations and Boundary-Value Problems with Applications" by M.
Pinsky, August 2001

page 4, exercise 2: \( u(x, y) = e^{kx} e^{k^2 y} \)
page 5, line 2: Newton’s law of.
page 5, line 22: \( u(x; t) \)
page 7, line 21: sometimes
page 9, exercise 1: \( u(0; t) = T_1, u_x(L; t) = 0 \)
page 9, exercise 2: \( u_x(L; t) = \Phi \)
page 9, exercise 3: \( (T_1 - u(L; t)) \)
page 10, line 6: \( x^2 + y^2 < R^2 \)
page 10, line 13: \( t > 0, 0 < x < L \)
page 11, line 11: \( \nabla^2 (\phi) = -\lambda \)
page 12, line 17: \( A_1 \) sinky
page 15, line 3: \( \frac{d}{dx}(e^{ax}) \)
page 17, line 20: \( y^2Y'' + y Y' = 0 \)
page 17, line 23: \( y^2Y'' + y Y' + \ell^2 Y = 0 \)
page 18, line 5: \( u(0, y) = A_1(A_3 \cdots) \)
page 18, line 4: that \( A_1 = 0; \)
page 18, line 1: -- Writing \( A = A_2 A_3, \)
page 25, line 9: \( = \sum_{i=1}^{N} ||\phi_i||^2 (\psi_i - \cdots \)
page 29, line 8: interchange \( \cos x \) and \( \sin x \)
page 32, line 7: have \( \langle \phi, \psi \rangle = \bar{a} \langle \phi, \psi \rangle \)
page 33, exercise 3: Let \( f = \)
page 33, exercise 8: \( g(x) = b_1 \varphi_1(x) + b_2 \varphi_2(x) + \cdots \)
page 34, exercise 15: \( R^2 = ||\varphi||^2 ||\psi||^2 - \langle \psi, \varphi \rangle ^2 \geq 0 \)
page 43, line 17: \( f(-x) - L < x < 0 \) (delete minus sign before \( f \)
page 45, exercise 10: \( -\pi < x < \pi \)
page 46, line 1: \( x' = \pi x/L \)
page 49, line 6: where \( x \in (a, b) \)
page 50, lines 2.4.6: \( f^3_{x,1+1} \) (in five places)
page 51, line 5: \( \cos a \sin b \)
page 53, line 9: insert \( \lim_{N \to \infty} \) before last integral
page 56, line 2: \( f(u) = \ldots \)
page 56, exercise 14(c): \( (N - \frac{1}{2}) \pi \leq X \leq \cdots \)
page 58, line 7: \( \cos 5x + \cdots + \cos(2n-1)x \)
page 59, line 1: \( \Delta x_k = \cdots \)
page 60, line 2: \( \sin(\pi x/2n) \)
page 65, line 17: \( B'_n = \frac{1}{\pi} \int_{-L}^{L} f'(x) \cos(n\pi x/L) \, dx = F(L) - 0 = f(-L + 0) \)
page 65, line 18: \( A'_n = \frac{1}{\pi} \int_{-L}^{L} f'(x) \cos(n\pi x/L) \, dx = \frac{n\pi}{L} \int_{-L}^{L} f'(x) \sin(n\pi x/L) \, dx = \frac{n\pi}{L} B_n \)
page 65, line 19: \( B''_n = \frac{1}{\pi} \int_{-L}^{L} f'(x) \sin(n\pi x/L) \, dx = -\frac{n\pi}{L} \int_{-L}^{L} f'(x) \cos(n\pi x/L) \, dx = -\frac{n\pi}{L} A_n \)
page 65, line 20: \( f(x), -L < x < L \)
page 66, line 10: \( F(-\pi) = F(\pi) \)
page 67, line 3: \( = \frac{1}{\pi} \int_{-\pi}^{\pi} \)
page 75, line 2: \( = \pi \sum_{n=1}^{N} n^2 (a_n^2 + \cdots \)
page 76, exercise 11: \( -\varphi(N) \leq \sum_{n=N+1}^{\infty} \)
page 76, exercise 12(a): \( -\frac{1}{\pi} \)
page 78, line 11: We begin with Euler’s formula...
page 79, line 8: may be proved using Euler’s formula
page 79, line 6: \( \cdots + i(a e^{ax} \sin bx + \cdots \)
page 81, line 2: we apply Euler’s formula...
page 81, line 8: Applying Euler’s formula...
page 83, exercise 5: $\sum_{n=1}^{\infty} r^n \sin nx = \frac{r \sin x}{1 + r^2}$
page 83, exercise 7: $\lim_{N \to \infty} \sum_{n=-N}^{N} \alpha_n e^{inx/L}$
page 85, line 20: $0 = A \cos(L\sqrt{x})$ (insert parentheses)
page 85, line 18: $= A(1 + hL)$ which requires...(delete $L$)
page 88, lines 21-22: $= h(\lambda e^{\mu L} + B e^{-\mu L})$ (delete $\mu$ twice)
page 87, line 25: $B\sqrt{x}$
page 90, line 2: $0 = 1 + hL$
page 92, line 16: in the interval $0 < L\sqrt{-\lambda} < \cdots$
page 92, lines 18-19: The first one satisfies $0 < L\sqrt{-\lambda_1} < \cdots$ while the second one satisfies $L\sqrt{-\lambda_2} > \cdots$
page 95, line 13:

$$\int_a^b \phi(x) f(x) dx + \int_a^b \lambda \phi(x) f(x) dx = 0$$

page 100, line 11: delete minus sign before $\text{div}(k \text{ grad } u)$
page 101, line 12: the integrand tends to...
page 108, exercise 4: conditions: $[k(\partial u/\partial z) - h(u - T_0)](x, y, 0) = 0$, $[k(\partial u/\partial z) + h(u - T_0)](x, y, L) = 0$
page 109, exercise 16: $\frac{1}{2} \tau < t < \tau$
page 125, line 1: $u_z(L; t) = 0$
page 125, line 1: $v(z; 0) = T_3 - T_1$
page 126, line 10: $B \lambda \cos(L\sqrt{x})$ (delete both minus signs)
page 127, line 7: $h, T_1, T_2, T_3$ are ....
page 127, line 1: $U(z) = T_1 + h z (T_2 - T_1)/(1 + hL)$
page 130, line 3: change $v_n$ to $f_n$
page 131, line 3: $u_t - K u_{zz} = \cdots$
page 131, line 5: $u_n(0) = f_n$
page 131, line 7: $u_n(t) = f_n e^{-\lambda_n Kt} + \cdots$
page 131, line 10: $\cdots + L \cos \alpha \cos \beta = 0$ (change sin to cos)
page 136, line 1:

$$-T^{-1}(a, t) \frac{\partial x}{\partial s}(a; t) \left| \frac{\partial x}{\partial s}(a; t) \right|$$

page 139, line 13: substitute into (2.4.9)
page 141, line 1: developed in Sec. 1.2.4
page 143, line 10: substitute this into (2.4.12) and get
page 151, exercise 4: ...solution of the wave equation with ....
page 152, exercise 16: $= c f(x + ct) + c f(x - ct)$
page 154, line 16: $= \sum_{m,n=1}^{\infty}$
page 154, line 20: $u(x, y; t) = \frac{1}{4\pi} \sum_{m,n=1}^{\infty}$
page 157, line 11: \( \frac{4}{\pi^2} \sum_{m,n=1}^{\infty} \)
page 158, line 14: \( \sum_{m,n=1}^{\infty} \)
page 158, line 20: \( \sum_{m,n=1}^{\infty} \)
page 158, line 22: \( \sum_{m,n=1}^{\infty} \)
page 158, line 25: \( \sum_{m,n=1}^{\infty} \)
page 160, line 8: \( \sum_{m,n=1}^{\infty} \)
page 163, line 16: \( 2^k \cdot 5 \)
page 165, line 3: when \( x = 0 \), \( x = L_1 \)
page 169, exercise 12: \( u(x, L_1; t) = 0 \)
page 172, line 3: \( \frac{\partial^2 U}{\partial x^2} \)
page 173, line 4: change \( u_{\rho \rho} \) to \( u_{\varphi \varphi} \) at end of line
page 175, line 10: \(-k \frac{\partial u}{\partial \rho}(\rho = \rho_0) = \frac{x_k}{\rho_0^2} \log(\rho_0/\rho_1) \)
page 176, line 2: boundary conditions \( u(1, \varphi) = 0 \) and \( u(2, \varphi) = 1 \ldots \)
page 177, line 11: where \( \ldots \) are the Fourier coefficients
page 178, line 22: \( R^{-n} B_n \)
page 187, line 3: \( \frac{a_0}{\rho_0 \lambda} \sum_{n=0}^{\infty} \)
page 189, line 4: \( -ie^{-i\theta} e^{x \cos \theta} d\theta \) (insert minus sign in exponent)
page 189, line 3: \( = - \int_{-x}^{t} \) (insert minus sign before integral)
page 190, line 8: \( = - \frac{2}{m} \)
page 191, line 10: \( \ldots + \frac{1}{m} y_i \)
page 191, line 13: ...a first-order linear equation for \( v' \), which ..... 
page 196, lines 1-2: since \( \rho \rightarrow \theta(\rho) \) is unbounded when \( \rho \rightarrow \infty \). From.....
page 197, line 2: (\( \sqrt{x} J_n(x) \))(x) = \( R(x) \cos \theta(x) \). The equation \( \cos \beta J_n(x) + x \sin \beta J_n'(x) = 0 \) is.....
page 198, line 5: (3.2.37) \( [(xy')^2] + (x^2 x^2 - m^2)(y^2 y') = 0 \)
page 200, line 1: ...formulas (3.2.18)-(3.2.19) in the...
page 201, line 7: For \( m = 0, \beta = 0,..... \)
page 202, line 11: \( A_n \int_{1}^{1} J_0(x_n) x^2 d x = \ldots \)
page 204, line 3: \[ j[3.5,4] \]
page 204, line 6: \[ j[3.8,3.85] \]
page 208, exercise 24: \( 1 = J_0(x) + 2J_2(x) + 2J_4(x) + \ldots \) and \( 0 = J_1(x) + J_3(x) + J_5(x) + \ldots \) (change minus sign to plus sign in two places
page 208, exercise 33: \( E_3(\rho) = \sum_{n=1}^{\infty} J_1(\rho x_n)/x_n J_2(x_n) \)
page 211, line 11: the initial conditions (3.3.2)-(3.3.3).
page 213, line 9: while \( A_{m,n} = \)
page 214, line 3: we take \( c = 1, a = 1, \ldots \)
page 214, line 5: \( \cos(tx_n(m)) \) (delete \( c \))
page 218, line 8: with \( \beta = 0, m = \ldots \)
page 219, line 11: \( U(\rho_{\text{max}}) = T_1 \)
page 221, line 12: \( U(\rho_{\text{max}}) = T_1 \)
page 221, line 14: with \( \cot \beta = h \rho_{\text{max}}/k \)
page 221, line 15:
\[
1 = \frac{2k \rho_{\text{max}}}{h} \sum_{n=1}^{\infty} \frac{J_0(x_n)}{x_n^2 + (h \rho_{\text{max}}/k)^2 J_0(x_n)} \quad 0 < x < 1
\]
page 221, line 16:
\[
1 - x^2 = \frac{8k \rho_{\text{max}}}{h} \sum_{n=1}^{\infty} \frac{J_0(x_n)}{x_n^2 + (h \rho_{\text{max}}/k)^2 J_0(x_n)} \quad 0 < x < 1
\]
page 221, line 18:
\[
A_n = \frac{2}{x_n^2 + (h \rho_{\text{max}}/k)^2 J_0(x_n)} \ldots \)
\( u(\rho; t) = U(\rho) + \sum_{n=1}^{\infty} A_n R_n(\rho) e^{-\lambda_n K t} \)

page 223, line 12: where \( \lambda_n = \lambda_n^{(0)} \), \( R_n = R_n^{(0)} \), \ldots

page 223, line 14:

\[ |2\pi A_n| = |\int_{\rho_1}^{\rho_2} [f(\rho) - U(\rho)] R_n(\rho) \rho \, dp| \]

page 223, line 15:

\[ \leq M_2 \int_{\rho_1}^{\rho_2} \rho |R_n(\rho)| \, dp \]

page 223, line 16:

\[ \leq M_2 \left( \frac{\rho_2^2 - \rho_1^2}{2} \right)^{1/2} \]

page 223, line 18: the series \( \sum_{n=1}^{\infty} A_n R_n(\rho) e^{-\lambda_n K t} \)

page 244, line 8: \( \lambda = i\omega/K \) (delete minus sign)

page 226, exercise 4: \( u_t = KV^2u + \sigma \) (insert \( u \))

page 228, line 22: \( (3.5.8) \quad \gamma = -\nu \) (delete = \( -m^2 \))

page 232, line 14: \( 1 = \frac{2}{3} \) \( \ldots \) (change \( z \) to 1)

page 238, line 1: Thus \( w_z = ru_z, w_r = ru_r + u, \ldots \) (change \( u to w \))

page 241, line 10: \( f(r) = T_2, \ldots \)

page 244, lines 7-8: if and only if \( \tanh(\mu) = k\mu/(k - ah) \)

page 244, line 5: \( \int_{\rho_1}^{\rho_2} [f(\rho) - W(\rho)] \, dp \) \( \ldots \) (change \( \varphi \) to \( f \))

page 247, line 10: \( C_n = (2aC/n\pi)(-1)^{n+1}, \ldots \)

page 248, line 13: \( C_n \cos \frac{n\pi c t}{a} + D_n \sin \frac{n\pi c t}{a} \)

page 248, line 7: \( -\frac{2E}{a} \cos(n\pi ct/a) \ldots \) (change \( C \) to \( E \))

page 255, line 5: \( \left( \frac{d}{dt} \right)^2 (s^2 - 1)^k = \ldots \)

page 257, line 7: \( = \frac{s((2n - 2)!)}{2^{n-1}((n - 1)!/2)^2} s^{n-1} + \text{lower order terms} \)

page 257, line 1: \( \frac{2}{2j+1} e^n = \ldots \)

Page 258, line 9: The integrals \( (4.2.17) \) can be used.\ldots

page 259, line 2: in the form \( [(1 - s^2)P_k'' + k(k + 1)P_k = 0 \)

page 259, line 6:

\[ 2A_k = \frac{2k + 1}{k(k + 1)} [(1 - a^2)P_k''(a) - (1 - b^2)P_k''(b)] \]

Page 262, line 3 after table: \( \Theta^{(m)} \) (change argument to superscript)

Page 264, line 4: \( (4.2.27) \cos \beta f(a) + a \sin \beta f'(a) = 0 \) (change \( R to a \) in three places)

Page 264, line 8: \( J_0 \cdots \)

Page 264, line 10: \( \int_0^a \cdots = (\pi/4)a^2 J_{k+1/2}(a\sqrt{\lambda})^2 \) (change \( R to a \) in three places)

Page 264, line 11: \( (\pi/a^2)(\lambda + \cot^2 \beta - m^2/a^2)J_{k+1/2}(a\sqrt{\lambda})^2 \) (change \( R to a \) in three places)

Page 269, line 15: \( u(a, \theta, \varphi) = \cos \varphi P_{11} + \frac{1}{3} \cos 2\varphi P_{21} \)

Page 269, line 20: \( = \pi A_{km} a^k \int_0^\pi \cdots \)

Page 269, line 21: \( = \pi B_{km} a^k \int_0^\pi \cdots \)

Page 271, line 13: \( u(r, \theta) = (r \cos \theta)/(1 + a) \)
page 273, line 3: \(-f \int \int r \leq a\)
page 273, line 4: \(\partial u/\partial r = -A_{00}/r^2 + \cdots\)
page 273, line 7: \(-\frac{A_{00}}{a} 4\pi a^2 = \cdots\)
page 274, line 12:
\[
= \frac{\delta}{6} (2a^3 + \frac{3}{2} \pi a^2 b + 4ab^2 + \frac{3\pi b^3}{8})
\]
page 274, line 14: \(\cdots \delta \cos \theta r^3 \sin \theta \cdots\)
page 274, line 15: \(= \frac{\delta}{3} \int_0^\pi (a + b \cos \theta)^4 \cos \theta \sin \theta \, d\theta\)
page 274, line 8: \(A_{20} = \cdots r^4 \sin \theta \cdots\)
page 274, line 7: \(= \frac{\delta}{2\pi} \int_0^\pi (a + b \sin \theta)^5 \cdots\)
page 274, line 3:
\[
A_{20} = -\frac{\delta}{20} \left[ \frac{5a^4 b \pi}{8} + \frac{16a^3 b^2}{3} + \frac{15a^2 b^3 \pi}{8} + \frac{64ab^4}{21} + \frac{25b^5}{128} \right]
\]
page 280, line 11: \(e^{-in\mu} F(\mu)\) is the Fourier transform...
page 286, lines 3–4: delete “which is satisfied.....\(< \infty\) and add period after “\(f(0) = 0\)”.
page 289, line 18: \(\int \int x^2 + y^2 + z^2 = R^2 \cdots\)
page 290, line 3: \(-|C|^2 A \cdots\) (insert minus sign after equality)
page 307, line 8: \(\int_0^\pi \text{e}^{i(x-u)} (h + a) e^{i\xi} d\xi\) (delete minus sign)
page 307, line 12: \(\int_0^\infty e^{-a z} \cdots\) (insert minus sign)
page 311, line 1–: delete “\(= 0\)” at end of equation
page 316, line 10: \(F(\mu) = \frac{1}{\sqrt{2\pi}} \cdots\)
page 319, line 2: \(f_k(x) \, dx\) (change \(i\) to \(k\) subscript)
page 319, line 4: \(F_k(\mu) \, d\mu\)
page 322, line 3: gives \(z(\xi, \eta) = \psi(\eta) \cdots\)
page 328, line 10: \((\nabla^2 f)(P + \xi) dS\) (change \(d\xi\) to \(dS\))
page 332, line 2: \(u(x, y) = \cdots e^{-\mu \xi} \cdots\) (insert minus sign in exponent)
page 338, line 3:
\[
= \int_{-\infty}^{\infty} (v_t [c^2 v_{xx} - (\alpha - \beta^2) v] + c^2 v_x v_{xt} + v v_t) \, dx
\]
(insert parentheses where needed)
page 346, line 10:
\[
\int_1^n \log x \, dx < \cdots < \int_1^{n+1} \log x \, dx
\]
page 346, line 12:
\[
\int_1^{n+1} \log x \, dx \leq \int_1^n \log x \, dx + \log(n + 1)
\]
page 346, line 14: \(n \log n - n + 1 < \log 2 + \cdots + \log n < n \log n - n + 1 + \log(n + 1)\)
page 346, line 15:
\[
\log n - 1 - \frac{1}{n} < \frac{\log 2 + \cdots + \log n}{n} < \log n - 1 + O \left( \frac{\log n}{n} \right)
\]
page 350, lines 1–2: we can allow \(b = \infty, a > -\infty\) in case ....
page 351, line 17: above expression is \(O(e^{tH}/t)\) when...
page 356, line 2: \((6.3.6) h(x) \leq H - \cdots\) (change \(\geq\) to \(\leq\))
page 356, line 7: \(O(\frac{e^{tH}}{t})\).
page 356, line 8: \(O(\frac{e^{tH}}{t})\).
page 356, line 1: \(\leq t e^{tH}\)
page 357, line 3: \(O(\frac{e^{tH}}{t})\).
page 359, line 2: \(F(\mu) = \frac{1}{2\pi} \int_{-\infty}^{\infty} \cdots\)
\[
\sqrt{\frac{2\pi}{2n_2-\gamma}}
\]
\[\text{page 360, line 8: } - (2\tau + \cdots) \text{ (insert 2)} \]
\[\text{page 364, line 7: } J_n(t) = \sqrt{\frac{2}{\pi t}} \cos(\cdots) \]
\[\text{page 367, line 5: } I = \sqrt{\frac{\pi}{4}} e^{i\pi/4} \]
\[\text{page 373, line 2: } \phi_+ (\mu) = \cdots, \phi_- (\mu) = \cdots \text{ (change to)} \]
\[\text{(7.1.11)} \quad Y_{n+1} = Y_n + \frac{h(f(t_n, Y_n) + \cdots)}{2} \text{ (insert h in numerator of fraction)} \]
\[\text{page 384, line 11: } (7.1.11) Y_{n+1} = Y_n + \frac{h(f(t_n, Y_n) + \cdots)}{2} \text{ (insert h in numerator of fraction)} \]
\[\text{page 387, line 4: } \ldots \text{we recall the } \text{big } O \ldots \]
\[\text{page 390, line 5: } \epsilon_{n+1} = \epsilon_n + 2h^2 \]
\[\text{page 390, line 7: } \epsilon_n = 2nh^2 \]
\[\text{page 390, line 9: } \epsilon_n = 2(t_n h) \]
\[\text{page 393, line 6: } \ldots \text{for } i = 0, 1, \ldots, n + 1 \]
\[\text{page 402, line 13: } u_i(t + \Delta t) + u_i(t - \Delta t) = u_{i+1}(t) + u_{i-1}(t) \text{ (change = to)} \]
\[\text{page 405, line 5: We have } K\Delta t/h^2 = \cdots \]
\[\text{page 410, line 5: } \varphi(P) \, dP \text{ (delete } w(P) \text{ before } dV) \]
\[\text{page 416, line 13: } u_y = - \sum_{j=0}^{N} c_j(x)(j + \frac{1}{2}) \frac{\pi}{a} \cdots \sin \cdots \]
\[\text{page 418, line 13: } = \sum_{j=0}^{N} \int_{-a}^{a} [a'c_j(x)^2 + (j + \frac{1}{2})^2 \left(\frac{\pi}{a}\right)^2 c_j(x)^2 - apc_j(x)\left(\frac{-1}{j+\frac{1}{2}}\right) \left(\frac{a}{\pi}\right)] dx \]
\[\text{page 418, line 15: } c_j''(x) = (j + \frac{1}{2})^2 \left(\frac{\pi}{a}\right)^2 c_j(x) - \frac{\rho(-1)^j}{j + \frac{1}{2}} \left(\frac{a}{\pi}\right) \]
\[\text{page 418, line 17: } c_j(x) = \left[\frac{\rho(-1)^j}{(j + \frac{1}{2}) \left(\frac{a}{\pi}\right)^3}\right] \cdots \]
\[\text{page 421, line 15: } 0 = \int_{-a}^{a} \int_{-b}^{b} \left[(-2(a^2 - x^2) - 2(b^2 - y^2)) \right] \cdots \]
\[ u(x, y) = \frac{64a^2b^2}{\pi^4} \cdots \]

\[ C_0 = \frac{\rho}{2}(k^2 - 1) \]

If \( L_2/2 < y < L_2, L_1(L_1 - y)/L_2 < x < L_1y/L_2 \) (insert < sign)

If \( L_2/2 < y < L_2, L_1(L_1 - y)/L_2 < x < L_1y/L_2 \) (insert < sign)

Theorem 8.1. Suppose that zero is not an eigenvalue of (8.1.1). Then......

\[ C = \int_0^1 \left( 1 - 9\xi/5 + \xi^3/2 \right)f(\xi) d\xi \]

\[ \lim_{c_{10}} \]

\[ \int \int \int_{D_c} \cdots = \int \int_{\partial D_c} \] (change to =)

Point \( Q' \) is suitably chosen with \( Q' \notin D \) and....

\[ C = /4\pi|Q| \]

\[ P = (\rho \cos \varphi \sin \theta, \rho \sin \varphi \sin \theta, \rho \cos \theta) \]

\[ \frac{\partial}{\partial r} \] (change \( r \) to \( \tau \))

\[ \int u\partial g/\partial n \to u(P) \] (delete minus sign)

\[ u(P) = -\int_{\partial D} \cdots \]

\[ = \int_0^L \cdots \] (change odd to 0)

\[ = -\int_0^L \cdots \] (change odd to 0)

\[ \int \int \int_{D} \cdots = \int \int_{\partial D} \] (change odd to 0)

\[ = \frac{1}{\sqrt{4\pi Kt}} \sum_{-\infty < m < \infty} \left( e^{-(x-y-2mL)^2/(4Kt)} - e^{-(x+y-(2m+2)L)^2/(4Kt)} \right) \]

\[ h(P; t) = \cdots H(\mu; t) \, d\mu \]

\[ u(P; t) = \cdots ds \int \int_{|\xi| = cs} e^{i(\mu, \xi)} \, d\xi \]

\[ = \cdots e^{i(\mu, P+\xi)} H \cdots \]

Page 456, line 3: delete the second \( dQ \) at the end of the line

\[ = \int_0^t M_{c(t-s)}((t-s)h(s))(P) \, ds \]

\[ u(P; t) = \cdots + \frac{t}{4\pi} \cdots \] (change = to +)

\[ u(P; t) = \cdots + \frac{1}{4\pi} \int \int_{|\xi| = ct} (\nabla^2 f)(P + \xi) \, d\xi \]

\[ = \frac{1}{4\pi} \int \int_{|\xi| = ct} (\nabla^2 f)(P + \xi) \, d\xi \]

\[ + \frac{1}{4\pi} \int \int_{|\xi| = ct} (\nabla^2 f)(P + \xi) \, d\xi \]
\[ \frac{1}{2} f_1(x + ct) + \cdots + \frac{k}{2c} \int_{-ct}^{ct} f_1(x - \xi)I_1 \cdots \] move c from first term to second term and change \( f_2 \) to \( f_1 \)

\[ e^d \frac{dY}{ds} + e^{2d} \frac{d^2Y}{ds^2} = s \frac{dY}{ds} + s^2 \frac{d^2Y}{ds^2} = sY' + s^2Y'' \]

\[ y'' = \sum_{n=1}^{\infty} (n+1)ny_n t^{n-1} \]

\[ (1 - M^{1-r})/(p-1) \]

\[ f_{n-1}(x) = \ldots \]

\[ |f_{n-1}(x_n) - f(x_n)| \]

\[ f_{n-1}(1/n) = \cdots \]

\[ (1 - x^{N+1})2M + \epsilon/2 \]

\[ u(x, y) = [A_1 \cos(\sqrt{\lambda} \ln|x|) + A_2 \sin(\sqrt{\lambda} \ln|x|)](A_3 e^{\beta/\sqrt{\lambda}} + A_4 e^{-\beta/\sqrt{\lambda}}) \]

\[ \sum_{n=1}^{\infty} \sin((n\pi x/L)e^{-n\pi y/L}, n = 1, 2, \ldots) \]

\[ u_{n}(x, y) = A_{n} \sin(n\pi x/L)e^{-n\pi y/L}, n = 1, 2, \ldots \]

\[ \sigma_{n}^{N} \text{ (sine series) } = \cdots = O(N^{-5}) \]

\[ e^{x} = \cdots \]

\[ \frac{1}{\sum_{n=0}^{\infty} A_{n} e^{\beta/\sqrt{\lambda}} \sin(\sqrt{\lambda} \ln|x|)} \]

\[ 2h \sqrt{\lambda} \cos(L\sqrt{\lambda}) + (h^2 - \lambda) \sin(L\sqrt{\lambda}) = 0, n = 1, 2, \ldots \]

\[ U(z) = \Phi(z - L) + T_0 \]

\[ U(z) = \cdots/(2K + hL) \]

\[ \frac{\sinh(L - z) \sqrt{\beta/K}}{\sinh L \sqrt{\beta/K}} \]

\[ u(z, t) = A_0 + A_1 \exp[-z \sqrt{\frac{\pi}{K \tau_1}} \cos \left( \frac{2\pi t}{\tau_1} - \sqrt{\frac{\pi}{K \tau_1}} z \right) \]

\[ + A_2 \exp[-z \sqrt{\frac{\pi}{K \tau_2}} \cos \left( \frac{2\pi t}{\tau_2} - \sqrt{\frac{\pi}{K \tau_2}} z \right) \]

\[ \text{change t's to tau's in six places, thus} \]

\[ a_{n} = \cdots + \frac{A_2}{L}(T_2 - T_1) \cdots \]

\[ g_{2}(t) \]

\[ \text{insert comma after first appearance of } t \]
u(x, y : t) = \cdots \exp \left[ -\left(\frac{n\pi}{T^2} \right)^2 Kt \right] \ (\text{change } L \text{ to } L_2),

A_n = \frac{2(T_3 - T_1)(1 - (-1)^n)}{n\pi} + \frac{2(T_1 - T_2)(-1)^n}{n\pi} \quad \text{(delete } L_2) 

\text{page 511, line 15: answer to no. 15 in 3.1 is}

u(\rho, \varphi) = \ln \rho + \frac{1}{2\ln 2} - \frac{1}{\pi} \sum_{n=1}^{\infty} \left[ \frac{\rho^n - \rho^{-n}}{2^n - 2^{-n}} \right] \cdots 

\text{page 511, line 4: answer to no 1 in 3.3 is } U(\rho) = (g/4c^2)(\rho^2 - a^2)

\text{page 511, line 2-, 3- replace } R \text{ by } a \text{ everywhere, thus}

u(\rho, \varphi; t) = \sum_{n=1}^{\infty} A_n J_0(\rho x_n/a) \cos(\xi x_n/a) J_0(x_n) = 0

A_n = \frac{2x_n^2}{J_1(x_n)^2} \int_0^a F_1(\rho) J_0\left(\frac{\rho x_n}{a}\right) \rho d\rho

\text{page 511, line 1-:}

u(\rho, \varphi; t) = \sum_{n=1}^{\infty} A_n J_0(\rho x_n/a) \sin(\xi x_n/a) \quad A_n = \frac{2}{ac x_n J_1(x_n)^2} \int_0^a 

\text{page 513, line 19: answer to no. 4 in Sec. 4.1 should read } (\cot \theta)/r^2.

\text{page 513, line 3: answer to no. 18, change 62 to exponent of 2, thus } \cdots \exp\left[-\left(\frac{a\pi}{\alpha^2} \right)^2 Kt \right] + T_1

\text{page 514, line 4: answer to no. 1 in Sec 4.2 should read } 0, -\frac{1}{2}, 0, \frac{1}{2}


\text{page 514, line 22: } u(r, \theta) = \cdots + \frac{4}{5}(r/a)^3 \cdots

\text{page 515, line 4: answer to no. 5 in 5.1 should have}

F(\mu) = \frac{1}{2\pi} \left[ \frac{1}{1 + (1 + \mu)^2} + \cdots \right]

\text{page 517, line 1-}

\frac{(1 + hz)}{h(2 + hL)} [I + h(L - x)]

\text{page 518, line 2: change “6.” to “5.,” and change } \sqrt{k} \text{ to } \sqrt{-k} \text{ in denominator of second formula}

\text{page 518, line 3: change “7.” to “6.”}

\text{page 518, line 4: change “8.” to “7.”}

\text{page 518, line 11: in solution to no. 1 in Sec 8.4, insert } ds \text{ at end of line}

\text{page 518, line 12: in solution to no. 2 in Sec 8.4, insert } ds \text{ at end of line}

\text{page 522, line 5 of left column: instead of ”de Moivre’s formula..”, it should read ”Euler’s formula, 78, 81” and be moved to line 7– of the same page.}