Corrections to "Numerical and Analytical Methods for Scientists and Engineers, using *Mathematica*"

page no./location	Correction	Corrected in 2 nd printing?	Error on cd?
Several places throughout the book and index	Neumann boundary conditions, named after Carl Gustav Neumann, are referred to incorrectly as von Neumann boundary conditions.	yes	yes
inside front cover	Planck constant: 6.6261×10^{-34} Joule-second	no	yes
inside front cover	Earth-sun distance: 1.50×10^{11} meters	no	yes
inside front cover	Earth-moon distance: 3.84×10^8 meters	no	yes
inside front cover	1 Angstrom (A) = 10^{-10} meter	yes	yes
inside front cover	gravitational constant	no	yes
6/Eqn. after (1.2.1)	$d^{N-1}x / dt^{N-1} = u_o$	no	no
14/line 17	properties of chaotic systems would take us too far afield,	no	no
14/ (2a)	$\frac{dy}{dt} = \sqrt{t} y^2$	no	no
14/ (2b)	-8 <y<8< td=""><td>no</td><td>yes</td></y<8<>	no	yes
17/3 rd line after Eq. (1.3.1)	$x''[t] = -\omega_0^2 x[t]$	no	no
18/3 rd line after Cell 1.10	square of the natural frequency	no	yes
21/ (3b)	R = 10 ohms,	yes	yes
23/(8a)	Make a table of plots of these field lines in the (ρ, z) plane and superimpose them all with a Show command to visualize the field lines from the dipole. (Hint: Show that $dz / d\rho = E_z / E_\rho$ and solve this ODE for $z(\rho)$ using DSolve . Plot the resulting curves in the (ρ, z) plane for the given initial conditions: $z(1) = 0.5n$.)	no	yes
23/(8b)	, the dipole potential has the form $\phi(r,\theta) = (\cos\theta)/r^2$.	no	no
31/ 6 th line from bottom	The same notation is / used in power series	yes	no
35/3 rd line after Cell 1.36	After the plots were overlaid	yes	yes
56/ (11)(c)	r=28; $x(0)=y(0)=z(0)=1$. What are $x(3)$ and $x(20)$?	yes	yes
59/(1.4.33)	$\mathbf{F}_{ij}(\mathbf{r}) = q_i q_j \mathbf{r} / 4\pi \varepsilon_o r^3$	no	yes
61/Cell 1.67	F[i_,j_,r_¥] :=	no	no
63/line above (1.5.4)	$C_2 = (H/T + gT/2)$	no	yes
63/(1.5.4)	$y(t) = (H / T + gT / 2)t - gt^{2} / 2$	no	yes

66/Cell 1.75	yend[v0_] := (y[t1]/.Sol[v0][[1]])/; v0 ε Reals (The conditional statement is explained in the electronic edition.)	yes	yes
70/ Eq. (1.62)	$\frac{d^2x}{dt^2} + \gamma \frac{dx}{dt} + \omega_0^2 x = f(t)$	yes	no
85/ (8)	Eq. (1.3.3)	yes	yes
85/(8a)	using the method of complex exponentials, $Q_p(t) = \text{Re}(Q_0 e^{-i\omega t})$.	no	yes
99/line above (2.1.17)	n = Ms	no	yes
110/ (6)	$x'' + 16\pi^2 x = f(t)$	yes	yes
111/ (10)	$Sin[440 \ 2 \ \pi \ t + \phi[t]]$	yes	yes
112/ Eq. (2.2.3)	$e^{+i n \Delta \omega t}$	yes	no
113/ Cell 2.31	$f^{(p)}(t)$ for $f(t) = t^2$ on $0 < t < 1$	yes	no
113/2 nd line after Cell 2.30	approximation to the complete series exhibits the	yes	no
114/2 lines	$f_e(t)$	no	yes
above (2.2.5)	Since the function is even		
115/Cell 2134	$f_{approx}[t_,M_]:=$	no	yes
120/1 st line	$(e^{i 2 \pi n x/L})^*$	yes	no
after Eq. (2.2.18)			
126 /axis label	$\operatorname{Re}[f[\omega]] \Longrightarrow \operatorname{Im}[f[\omega]]$	yes	no
133/top of pg.	$\tilde{h}(\omega) = \int_{-\infty}^{\infty} dt_2 \dots$	no	no
134/Cell 2.53	$e^{-\frac{1}{4}\Delta t^2\omega^2}$	no	no
136/before (2.3.30)	consider integrals over Dirac δ -functions of the form	no	no
138/4 th line	$-\sin(\Delta\omega t)$	yes	no
139/9 th line	sense of the term	yes	no
142/Cell 2.59	<pre>PlayRange->All];</pre>	yes	no
148/Cell 2.60	<pre>F1 = Table[Exp[-I 2. Pi m n/nn],</pre>	yes	yes
149/line 7	Since $\omega = 0$	yes	no
160/center of page	$(i \ \omega_{+} + s_{1})$	yes	no
163/center of page	sum of the solutions	yes	no
164/ (9)(a)	$h(t + \Delta t) - h(t - \Delta t)$	yes	no
165 (11)(b)	$\int_{-\infty}^{\infty} t / (ia+t)e^{i\omega t} dt$	no	no
166/Table 2.2	Data for Exercise (15)	no	yes
167/(20a)	Find a Green's function for the following operator:	no	yes
172/line 1	Since $g = 0$ for $t \le t_0$ and g is continuous at $t = t_0$, all terms	no	yes
174/line after (2.4.14)	Also, the Green's function itself is continuous (if $N > 1$),	no	yes

$\begin{array}{rrrr} T/7(\operatorname{cll} 2.9)] (21\operatorname{ear}[\mathbf{u}, \Delta \mathbf{t}]; \qquad \qquad$	175/(2.4.20)	$\frac{x(t_n) - x(t_{n-1})}{\Delta t} + u_0(t_{n-1})x(t_{n-1}) = f(t_{n-1}), n > 0$	no	yes
$\begin{split} & \ 227 \text{ abs} (2,4) p(x_n,2) \Rightarrow \phi(x_n,2) & \text{ yes } no \\ & S^n \text{ row } & (x_0) = V_n & \text{ yes } yes \\ & \ 84/(\ln 2) & \phi_n \text{ real } yes & \text{ yes } yes \\ & \ 88/(2p) & \phi_n \text{ real } yes & \text{ yes } yes \\ & \ 88/(2p) & \phi_n \text{ real } yes & \text{ yes } yes \\ & \ 88/(2p) & \phi_n \text{ real } yes & \text{ yes } yes \\ & \ 88/(2p) & \ noch \text{ case take } M = 40, & \text{ yes } yes \\ & \ 188/(2p) & \ noch \text{ case take } M = 40, & \text{ yes } yes \\ & \ 190/(2p) \ 2.2 & \ 10, \ _{2} = \texttt{Fullsimplify}[\dots & no & no \\ & no & no & no \\ & 204/(3.1.29) & \frac{1}{\rho(x)} \frac{\partial}{\partial x} \Big(T(x) \frac{\partial}{\partial x} y_{vq}(x) \Big) = -S(x) & & no & no \\ & 208/(3.1.39) & \frac{\partial}{\partial t} = \frac{\partial}{\partial x} \Big(\frac{x}{\partial x} \Big) + S(x,t). & & no & no \\ & 210/(3.1.48) & 0 = \frac{\partial}{\partial x} \Big(\kappa(x) \frac{\partial T_{vq}}{\partial x} \Big) + S(x,t). & & no & no \\ & 2224/(3) & W(r) = -GM_{r}/r - \omega^2 r^2/2 & yes & yes \\ & 227/(6)(a) & \text{ from the frett-to the post } yes & yes \\ & 227/(2b)(a) & \text{ from the frett-to the post } yes & yes \\ & & yes \\ & 229/(12)(b) & \text{ Recall that a rigid pendulum has frequency } \sqrt{rI}, \text{ where } r \text{ is the maximum possible torque due to gravity, and I i \\ & & no \\ & 244/(2e113.21) & \text{ pol} (-p(D_{r}^{-1}) = \frac{2}{\sigma^2} \text{ sc} \\ & & 248/(3.244) & \text{ pol} (-p(D_{r}^{-1}) = \frac{2}{\sigma^2} \text{ sc} \\ & & 248/(3.244) & \text{ pol} (-p(D_{r}^{-1}) = \frac{2}{\sigma^2} \text{ sc} \\ & & & \text{ abs} (1,j(n)) & \text{ for } M/2 + \rho x) \\ & & & \text{ paragraph } \\ & & & A_n = \frac{2V_0}{a \sinh(nmb f_0)} \int_0^\infty \frac{n\pi x}{a} dx \\ & & & \text{ no } \\ & & & \frac{248/(3.244)}{\sigma^2 2 - s X^2} & \text{ no } yes \\ & & & 248/(3.244) & \text{ pol} (-p(D_{r}^{-1}) = \frac{2}{\sigma^2} \text{ sc} \\ & & & \text{ all tha a rigid pendulum has frequency } \sqrt{rI}, \text{ where } r \text{ is the maximum possible torque due to gravity, and I i \\ & & & \frac{23}{23/(21)} n^3 \\ & & & \text{ all } \frac{1}{\sigma^2} - \frac{2}{s X^2} & \text{ no } yes \\ & & & 248/(3.244) & \frac{1}{\sigma^2} - \frac{1}{\sigma^2} = s X^2 \\ & & & \text{ all } \frac{1}{\sigma^2} = s X^2 \\ & & & \text{ all } \frac{1}{\sigma^2} = s X^2 \\ & & & & \text{ all } \frac{1}{\sigma^2} = s X^2 \\ & & & & \text{ all } \frac{1}{\sigma^2} = \frac{2}{\sigma^2} = s X^2 \\ & & & & & & & & & & & & & & & & & & $	177/Cell 2.91	Clear[u, Δt];	yes	no
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	· · · · · · · · · · · · · · · · · · ·		-	no
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	184/line 2	$\phi(x_0) = V_a$	yes	no
188/(2i)Piot $G(x,1/2)$ noyes190In each case take $M = 40$.yesyes194/line 1Applying this result to Eq. (3.1.4),nono199/Cell 3.2 $A[\mathbf{n}_1] = \mathbf{Full Simplify[}$ nono204/(3.1.29) $\frac{1}{\rho(x)} \frac{\partial}{\partial x} \left(T(x) \frac{\partial}{\partial x} y_m(x) \right) = -S(x)$ nono208/(3.1.39) $\frac{\partial e}{\partial t} = \frac{\partial}{\partial x} \left(\frac{k}{n^2} \frac{\partial}{n} \right) + S(x,t)$.nono210/(3.1.48) $0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_m}{\partial x} \right) + S(x)$ nono224/(3) $W(r) = -GM_x/r - \omega^2 r^2 / 2$ yesyes227/(6)(a)from the fret to the postyesyes227,228/(7) $\frac{\partial^2}{\partial t^2} y(x,t) = \frac{\partial^2}{\partial x^2} y(x,t) + f(x)$ nono(a) Take $f(x)=0$. (b) Take $f(x)=0$.yesyesyes229/(12)(b)Recall that a rigid pendulum has frequency $\sqrt{r/t}$, where τ is the maximum possible torque due to gravity, and I isnoyes238/14" paragraph $A_n = \frac{2V_0}{a sinh(n\pi b / a)_0} \int_0^{\pi} \cos \frac{n\pi x}{a} dx$ noyesyes248/Get 13.2.1Do [$\mathbf{r}+(\theta, \phi] =$ yesnoyes248/Get 2.1.40 $\partial^2 Z / \partial_x^2 = \kappa Z$ noyesyes253/Cell 3.34 $A[\mathbf{n}] = \frac{2 v0}{a^2 Bessel J[1,j[n]]^2 Sinh[j[n] L/a]}$ yesyes257/(1d) $\frac{\partial \phi}{\partial x}(0,y) = \phi(1,y) =noyesyes$	188/ (2f)		yes	yes
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	188/ (2g)	κ_0 real	yes	yes
194/line 1Applying this result to Eq. (3.1.4),nono199/Cell 3.2A[n_] = FullSimplify[nonono204/(3.1.29) $\frac{1}{r}$ $\frac{\partial}{\partial x} (\frac{T}{x}, \frac{\partial}{\partial x} y_{eq}(x)) = -S(x)$ nonono208/(3.1.39) $\frac{\partial e}{\partial t} = \frac{\partial}{\partial x} (\frac{x}{\partial x}) + S(x, t)$.nonono210/(3.1.48) $0 = \frac{\partial}{\partial x} (\kappa(x) \frac{\partial T_{eq}}{\partial x}) + S(x)$ nonono224/(3) $W(r) = -GM_{c}/r - \omega^{2}r^{2}/2$ yesyes227.(6)(a)from the fret to the postyesyes227.228/(7) $\frac{\partial^{2}}{\partial t^{2}} y(x, t) = \frac{\partial^{2}}{\partial x^{2}} y(x, t) + f(x)$ nono(a) Take f(x)=0. (b) Take f(x)=x.nonono229/(12)(b)Recall that a rigid pendulum has frequency \sqrt{rf} , where τ is the maximum possible torque due to gravity, and I isnoyes248/clt 3.21Do[$x+[[0, \phi_{-}]] =$ yesnoyes248/clt 3.21 $Do[x+[[0, \phi_{-}]] =$ noyes248/clt 3.244) $\partial^{2}z/\partial^{2}z = \kappa Z$ noyes253/Cell 3.34A[n_]] = $\frac{2 V0}{a^{2} BesselJ[1,j[n]]^{2} Sinh[j[n] L/a]}$ yesyes253/Cell 3.34A[n_]] = $\frac{2 V0}{a^{2} BesselJ[1,j[n]]^{2} Sinh[j[n] L/a]}$ yesyes	188/(2i)	Plot $G(x, 1/2)$	no	yes
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	190	In each case take $M = 40$.	yes	yes
$\begin{array}{c cccc} 204/(3.1.29) & \frac{1}{\rho(x)} \frac{\partial}{\partial x} \left(T(x) \frac{\partial}{\partial x} y_{eq}(x) \right) = -S(x) & & & & & & & & & & & & \\ 208/(3.1.39) & \frac{\partial e}{\partial t} = \frac{\partial}{\partial x} \left(\kappa \left(\frac{\partial T}{\partial x} \right) + S(x,t) \right) & & & & & & & & & & & & \\ 210/(3.1.48) & & & & & & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & & \\ 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x) & & & \\ 0 = \frac{\partial}$	194/line 1	Applying this result to Eq. (3.1.4),	no	no
$\begin{array}{c c} 208/(3.1.39) & \frac{\partial \varepsilon}{\partial t} = \frac{\partial}{\partial x} \left(\kappa \frac{\partial T}{\partial x} \right) + S(x,t). & no & no \\ \hline 210/(3.1.48) & 0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{s_q}}{\partial x} \right) + S(x) & no & yes \\ \hline 224/(3) & W(r) = -GM_e/r - a^2r^2/2 & yes & yes \\ \hline 227/(6)(a) & from the fact to the post & yes & yes \\ \hline 227,228/(7) & \frac{\partial^2}{\partial t^2} y(x,t) = \frac{\partial^2}{\partial x^2} y(x,t) + f(x) & no & no \\ & (a) \dots Take f(x) = 0. \\ (b) \dots Take f(x) = x. & yes & yes \\ \hline 229/(11) & y(x) = -(g/2T)(L_2 - x)(m + M/2 + \rho x) & yes & yes \\ \hline 229/(12)(b) & Recall that a rigid pendulum has frequency \sqrt{\tau I}, where \tau is the maximum possible torque due to gravity, and I is \\ \hline 238/1^a \\ paragraph & A_n = \frac{2V_0}{a \sinh(n\pi b/a)} \int_0^n \cos \frac{n\pi x}{a} dx & no & yes \\ \hline 244/Cell 3.21 & Do[\mathbf{r} + [\Theta, \Phi] = & ycs & no \\ \hline 248/(3.2.44) & \partial^2 Z/\partial z^2 = \kappa Z & no & yes \\ \hline 248/(3.2.48) & A[n] = \frac{2 \ VO}{a^2 \ Bessel J[1,j[n]]^2 \ Sinh[j[n] \ L/a]} \dots & yes & yes \\ \hline 253/Cell 3.34 & A[n] = \frac{2 \ VO}{a^2 \ Bessel J[1,j[n]] \ j[n]} & yes & yes \\ \hline 253/Cell 3.34 & A[n] = \frac{2 \ VO}{a^2 \ Bessel J[1,j[n]] \ j[n]} & yes & yes \\ \hline 253/Cell 3.34 & \partial_{\alpha}(0,y) = \phi(1,y) = \dots & no & yes \\ \hline 257/(1d) & \frac{\partial \phi}{\partial x}(0,y) = \phi(1,y) = \dots & no & yes \\ \hline \end{array}$	199/Cell 3.2	A[n_] = FullSimplify[no	no
$\frac{1}{24} = \frac{1}{\partial x} \left[\frac{x}{\partial x} \right] + S(x,t).$ 210/(3.1.48) $0 = \frac{\partial}{\partial x} \left[x(x) \frac{\partial T_{e_i}}{\partial x} \right] + S(x)$ no $\frac{224/(3)}{(324)} = \frac{\partial^2}{\partial x} \left[x(x) \frac{\partial T_{e_i}}{\partial x} \right] + S(x)$ 224/(3) $W(r) = -GM_e/r - \omega^3 r^2/2$ yes yes yes yes yes 227/(6)(a) from the fret to the post yes yes yes 227/(6)(a) from the fret to the post yes yes yes 227/(228/(7) $\frac{\partial^2}{\partial t^2} y(x,t) = \frac{\partial^2}{\partial x^2} y(x,t) + f(x)$ no no no no no (a) Take f(x)=0. (b) Take f(x)=x. 229/(12)(b) Recall that a rigid pendulum has frequency $\sqrt{\tau I}$, where τ is the maximum possible torque due to gravity, and I is 238/1 st $A_n = \frac{2V_0}{a \sinh(n\pi b/a)} \int_0^a \cos \frac{n\pi x}{a} dx$ no yes 248/(3.2.44) $\frac{\partial^2 Z}{\partial z^2} = \kappa Z$ no yes yes yes yes (3.2.48) A[n_] = \frac{2 V0}{a^2 Bessel J[1,j[n]] L/a]} yes	204/(3.1.29)	$\frac{1}{\rho(x)}\frac{\partial}{\partial x}\left(T(x)\frac{\partial}{\partial x}y_{eq}(x)\right) = -S(x)$	no	yes
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	208/(3.1.39)	$\frac{\partial \varepsilon}{\partial t} = \frac{\partial}{\partial x} \left(\kappa \frac{\partial T}{\partial x} \right) + S(x, t).$	no	no
$\frac{227/(6)(a)}{227/(28/(7))} = \frac{\partial^2}{\partial t^2} y(x,t) = \frac{\partial^2}{\partial x^2} y(x,t) + f(x)$ $(a) \dots Take f(x)=0.$ $(b) \dots Take f(x)=0.$ $(b) \dots Take f(x)=x.$ $\frac{229(11)}{2(x)^2} y(x,t) = -(g/2T)(L_2 - x)(m + M/2 + \rho x)$ $\frac{229/(12)(b)}{229/(12)(b)}$ Recall that a rigid pendulum has frequency $\sqrt{\tau/I}$, where τ is the maximum possible torque due to gravity, and <i>I</i> is $\frac{238/1^{st}}{paragraph}$ $A_n = \frac{2V_0}{a \sinh(n\pi b/a)} \int_0^a \cos \frac{n\pi x}{a} dx$ $\frac{1}{244/Cell 3.21}$ $Do[r+1[\theta, \phi] = yes no$ $\frac{248/(3.2.44)}{2^2 Z/\partial z^2} = \kappa Z$ $\frac{1}{253/Cell 3.34}$ $A[n] = \frac{2 V0}{a^2 Bessel J[1,j[n]]^2 Sinh[j[n] L/a]}$ $\frac{2 V0 Csch[\frac{L}{j[n]}]}{Bessel J[1,j[n]] j[n]}$ $\frac{1}{257/(1d)}$ $\frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) =$ $\frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = \frac{1}{2} \frac{\partial \phi}{\partial x}(0, y) = $	210/(3.1.48)	$0 = \frac{\partial}{\partial x} \left(\kappa(x) \frac{\partial T_{eq}}{\partial x} \right) + S(x)$	no	yes
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	224/(3)	$W(r) = -GM_e / r - \omega^2 r^2 / 2$	yes	yes
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	227/(6)(a)	č	yes	yes
$\begin{array}{c cccc} 229(11) & y(x) = -(g/2T)(L_2 - x)(m + M/2 + \rho x) & \text{yes} & \text{yes} \\ 229/(12)(b) & \text{Recall that a rigid pendulum has frequency } \sqrt{\tau/I}, \text{ where } \tau \text{ is the } & \text{maximum possible torque due to gravity, and } I \text{ is} & no \\ 238/1^{\text{st}} & paragraph & A_n = \frac{2V_0}{a\sinh(n\pi b / a)} \int_0^a \cos \frac{n\pi x}{a} dx & no \\ 244/\text{Cell 3.21} & \text{Do[} \mathbf{r} + \mathbf{[} \mathbf{[} 0, \phi] = & \text{yes} & \text{no} \\ 248/(3.2.44) & \partial^2 Z / \partial z^2 = \kappa Z & no \\ 248/after Eq. & \text{The general solution is in terms of two independent functions/} & \text{yes} \\ (3.2.48) & \text{called Bessel functions of the first kind } J_m(x), \text{ and } Y_m(x). \\ 253/\text{Cell 3.34} & A[n] = \frac{2 \text{ V0}}{a^2 \text{ BesselJ[1,j[n]]}^2 \text{ Sinh[j[n] L/a]}} & \text{yes} & \text{yes} \\ 245/(1d) & \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) = \dots & no & \text{yes} \\ \end{array}$	227,228/(7)	(a) Take $f(x)=0$.	no	no
$\begin{array}{c cccc} 229/(12)(b) & \operatorname{Recall that a rigid pendulum has frequency } \sqrt{\tau/I}, \text{ where } \tau \text{ is the } & \operatorname{yes} & \operatorname{yes} & \operatorname{yes} \\ \hline maximum possible torque due to gravity, and I is & no & \operatorname{yes} \\ paragraph & A_n = \frac{2V_0}{a \sinh(n\pi b/a)} \int_0^a \cos \frac{n\pi x}{a} dx & no & \operatorname{yes} & \operatorname{no} \\ 244/\operatorname{Cell 3.21} & \operatorname{Do[} \mathbf{r} + [\boldsymbol{\theta}, \boldsymbol{\phi}] = & \operatorname{yes} & \operatorname{no} & \operatorname{yes} \\ 248/(3.2.44) & \frac{\partial^2 Z}{\partial z^2} = \kappa Z & no & \operatorname{yes} \\ 248/after Eq. & \text{The general solution is in terms of two independent functions/} & \operatorname{yes} & \operatorname{yes} & \operatorname{yes} \\ (3.2.48) & \text{called Bessel functions of the first kind} & J_m(x), \text{ and } Y_m(x). & \end{array} \\ \begin{array}{c} 253/\operatorname{Cell 3.34} & A[n] & = & \frac{2 \ V0}{a^2 \ \operatorname{BesselJ[1,j[n]]}^2 \ \operatorname{Sinh[j[n] \ L/a]}^{}} & \operatorname{yes} & \operatorname{yes} & \operatorname{yes} \\ \frac{2 \ V0 \ \operatorname{Csch} \left\lfloor \frac{\mathrm{L} \ j[n]}{a} \right\rfloor}{\operatorname{BesselJ[1,j[n]]} \ j[n]} & & \end{array} \\ \end{array} \\ \begin{array}{c} 257/(1d) & \frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) = \dots & \end{array} \end{array}$	229(11)		yes	yes
$\begin{array}{c c} 238/1^{st} \\ paragraph \\ A_n = \frac{2V_0}{a\sinh(n\pi b/a)} \int_0^a \cos \frac{n\pi x}{a} dx \\ \hline no \\ 244/Cell 3.21 \\ 244/Cell 3.21 \\ 0 0 [\mathbf{r}+[\theta,\phi]] = \\ 248/(3.2.44) \\ \partial^2 Z/\partial z^2 = \kappa Z \\ \hline no \\ 248/after Eq. \\ (3.2.48) \\ \hline ne general solution is in terms of two independent functions/ \\ called Bessel functions of the first kind J_m(x), and Y_m(x). \\ \hline 253/Cell 3.34 \\ A[n] = \frac{2 \ V0}{a^2 \ Bessel J[1,j[n]]^2 \ Sinh[j[n] \ L/a]} \\ \hline 2 \ V0 \ Csch \left\lfloor \frac{L \ j[n]}{a} \right\rfloor \\ \hline Bessel J[1,j[n]] \ j[n] \\ \hline 257/(1d) \\ \hline \partial \phi \\ \partial x (0,y) = \phi(1,y) = \dots \end{array} \right$	229/(12)(b)	Recall that a rigid pendulum has frequency $\sqrt{\tau/I}$, where τ is the	yes	yes
$\frac{248/(3.2.44)}{248/(3.2.44)} = \frac{\partial^2 Z}{\partial z^2} = \kappa Z$ $\frac{\partial^2 Z}{\partial z^2} = \kappa $			no	yes
$\begin{array}{c c} 248/(3.2.44) & \partial^2 Z / \partial z^2 = \kappa Z & \text{no} & \text{yes} \\ \hline 248/(312.44) & \text{The general solution is in terms of two independent functions/} & \text{yes} & \text{yes} \\ \hline (3.2.48) & \text{called Bessel functions of the first kind} \ J_m(x), \text{ and } Y_m(x). & & & & & \\ \hline 253/\text{Cell 3.34} & & \mathbb{A}[n_{-}] = \frac{2 \ V0}{a^2 \ \text{BesselJ}[1,j[n]]^2 \ \text{Sinh}[j[n] \ \text{L/a}]} & & & \text{yes} & & & & \\ \hline 2 \ V0 \ \text{Csch} \left[\frac{\text{L} \ j[n]}{a} \right] \\ \hline \text{BesselJ}[1,j[n]] \ j[n] & & & & & \\ \hline 2 \ 57/(1d) & & & & & & \\ \hline \frac{\partial \phi}{\partial x}(0,y) = \phi(1,y) = \dots & & & & & \\ \hline \end{array}$	244/Cell 3.21	$Do[r+[\theta,\phi] =$	yes	no
$\begin{array}{c} 248/\text{after Eq.} \\ (3.2.48) \end{array} \begin{array}{c} \text{The general solution is in terms of two independent functions},} & \text{yes} & \text{yes} \\ \text{called Bessel functions of the first kind } J_m(x), \text{ and } Y_m(x).} \end{array} \begin{array}{c} 253/\text{Cell } 3.34 \\ \text{A[n_]} = \frac{2 \text{ VO}}{a^2 \text{ BesselJ[1,j[n]]}^2 \text{ Sinh[j[n] L/a]}} & \text{yes} & \text{yes} \\ \frac{2 \text{ VO } \text{ Csch} \left[\frac{\text{L } \text{j[n]}}{a} \right]}{\text{BesselJ[1,j[n]] j[n]}} & \text{for } yes \\ \end{array} \begin{array}{c} 253/\text{Cell } 3.34 \\ \text{Mercel } 3.34 \\ \frac{2 \text{ VO } \text{ Csch} \left[\frac{\text{L } \text{j[n]}}{a} \right]}{a} \\ \frac{2 \text{ VO } \text{ Csch} \left[\frac{\text{L } \text{j[n]}}{a} \right]}{\text{BesselJ[1,j[n]] j[n]}} & \text{for } yes \\ \end{array} \begin{array}{c} yes \\ yes $	248/(3.2.44)		no	yes
$A[n_] = \frac{A[n_]}{a^2 \operatorname{BesselJ}[1,j[n]]^2 \operatorname{Sinh}[j[n] L/a]} $ $\frac{2 \operatorname{VO} \operatorname{Csch}\left[\frac{L \ j[n]}{a}\right]}{\operatorname{BesselJ}[1,j[n]] \ j[n]}$ $257/(1d) \qquad \frac{\partial \phi}{\partial x}(0,y) = \phi(1,y) = \dots$ no yes	-		yes	yes
$\frac{\partial \phi}{\partial x}(0, y) = \phi(1, y) = \dots$ no yes	253/Cell 3.34	$A[n_] = \frac{1}{a^2 \operatorname{BesselJ}[1,j[n]]^2 \operatorname{Sinh}[j[n] L/a]}^{\dots}$ $2 \operatorname{VO} \operatorname{Csch}\left[\frac{L j[n]}{a}\right]$	yes	yes
	257/(1d)		no	yes
	257/(4)	<i>dx</i> A grounded conducting cylinder of radius	yes	yes

271/center of page	the set of Bessel eigenfunctionsSec. 3.2.5, satisfied the Sturm- Liouville	yes	no
277/(17)	$k_n a \tan k_n a = m V_o a^2 / \hbar^2 \dots m V_o a^2 / \hbar^2 = 1$	yes	yes
277/(22)	<i>better hint:</i> [Hint: Eq. (4.1.24) implies that the adjoint eigenmodes must satisfy different boundary conditions than those given above.]	yes	yes
281/(4.2.22)	$c_{pn}(t) = \int_{0}^{t} g(t - t_{0}) \frac{(\psi_{n}(x), \overline{S}(x, t_{0}))}{(\psi_{n}, \psi_{n})} dt_{0}$	no	yes
282/Eq. (4.2.27)	$(\psi_n, v_o) \rightarrow (\psi_n, v_o - \frac{\partial u}{\partial t}(x, 0))$	yes	no
285/before Cell 4.10	$c_n(t) = A_n e^{\lambda_n t} + \frac{2(-1)^n}{n\pi} \int_0^t e^{\lambda_n(t-\overline{t})} \cos \omega_n \overline{t} d\overline{t}$	yes	yes
288/(4.2.46)	$\psi_n(z) = AJ_0(j_{0,n}\sqrt{z/L})$	no	yes
292/Cell 4.18	<pre>ψ[n_,z_] := BesselJ[0,j0[[n]]]</pre>	yes	no
294/(3)(b)	Take $\chi = 2 \times 10^{-7} \text{ m}^2/\text{s}$, C = 4 x 10 ⁶ J/m ³ K, and assume insulating	no	no
297/(9)(b)	$J_1(2\omega_n\sqrt{a/\alpha g}) = 0$	no	no
298(10)	rewrite part (b) and (c): in (b) add an animation of the solution; (c) Find values of ω for which $z(r,t)$ increases without bound.	yes	yes
300/(19)	$K(t) = \frac{1}{2} \int_{V} d^{3}r \mathcal{H} \dot{\eta}^{2}(x,t)$	yes	yes
308/line 16	$(\psi_{mn}, \nabla^2 u)$	yes	no
346/Cell 4.49	add (10^6 years) to the axis label of the graph.	yes	no
346/center of page	20 million years or so. This	yes	no
347/(2c)	The initial conditions are $\dot{z} = 0$, $z(x, y, 0) = t(x)t(y)$,	no	yes
348/(7)(b)	Garland, (1979, p. 356)	yes	yes
348/(9)(b)	c = a = 1	yes	yes
350/Eq. (4.4.37)	$0 \le l < n,$	yes	yes
352/(23)	$\partial_t z(r,0) = 0,$	yes	no
353/(26)	New initial condition: $\phi = 0 = \partial_t \phi$ initially.	yes	no
361-365	Change the normalization of $\psi(x,t)$ from $A = 1/\sqrt{2 \text{ Pi } a^2}$ to $A = 1/\sqrt{\sqrt{\pi} a}$	yes	yes
371/Eq. above (5.1.51)	$p(\mathbf{r},t) = \operatorname{Re}\left(e^{i[\mathbf{k}_{0}\cdot\mathbf{r}-\omega(k_{0})t]}\int\frac{d^{3}k}{(2\pi)^{3}}2C(\mathbf{k})e^{i(\mathbf{k}-\mathbf{k}_{0})\cdot[\mathbf{r}-\mathbf{v}_{g}(\mathbf{k}_{0})t]}\right)$	no	no
378/3 rd line above (5.1.77)	$p_0(\mathbf{r}) = P e^{-r^2/a^2}, v_0(\mathbf{r}) = 0$	no	yes
378/(5.1.77)	$p(\mathbf{r},t) = 2 \operatorname{Re} \int \dots$	no	yes
383/line 3	any entirely different direction	yes	no
389/(15)	A free particle of mass m is described initially	no	yes
389/(15)	taking $\hbar = m = A = 1, \ \beta = 1/10,,$	yes	yes
396/(30)(a)	$T(x,t) = (T_0 - T_1)erf(x/2\sqrt{\chi t}) + T_1$	no	yes
409/line 5	when we analyzed the motion of	yes	no

421/Eq.	α replaced by $-\alpha$	yes	yes
(5.2.55) and			
following line	1/3		
422/Cell 5.28	x-axis label: $\alpha^{1/3}(x-x_{o})$	yes	no
$438/2^{nd}$ par. 1 st	the boundary shown in Fig. 6.1(b) is more difficult to treat	yes	yes
line			
442/Cell 6.15	Integrate[v[i,j,x,y]/	yes	no
453/line 7	whereas the notation c[n,"t] does not,	no	no
$\frac{462}{(7)(2)}$	and the top end and of the tube For basis functions, use $\sin n\pi \bar{x}$.	no	no
463/(7)(a)		yes	no
478/Cell 6.72	<pre>add Clear["Global`*"];</pre>	yes	no
479/Cell 6.73	Clear["Global`*"];	yes	no
480/Cell 674	$ \dots + \Delta t^{2} c[j, k]^{2} (\frac{z[j+1, k, n-1] - 2z[j, k, n-1] + z[j-1, k, n-1]}{\Delta x^{2}} + \frac{z[j, k-1, n-1] - 2z[j, k, n-1] + z[j, k-1, n-1]}{\Delta y^{2}}) /; n \ge 2 $	no	yes
480/Eq. above Cell 6.75	$a_{jk} = \dots + \frac{c_{jk}^2}{\Delta y^2} (z_{jk+1}^0 - 2z_{jk}^0 + z_{jk-1}^0)$	no	yes
504	move the heading Exercises for Sec. 6.2	yes	no
505/(4)	$\Delta t[V_o /\hbar + 2\hbar/(m\Delta x^2)] \le 1$ and $\Delta t V_o \ge \hbar$	yes	yes
506/(9)	$\frac{\tilde{o}T}{\tilde{o}t} = \frac{\tilde{o}^2 T}{\tilde{o}r^2} + \frac{1}{r}\frac{\tilde{o}T}{\tilde{o}r} + \frac{1}{r^2}\frac{\tilde{o}^2 T}{\tilde{o}\theta^2} + r^2\cos m\theta$	yes	no
506/(9)(a)	One possibility is $r(j) = (j-1/2)\Delta r,$	yes	yes
512-566	Chapter heading: Nonlinear Partial Differential Equations	yes	no
$514/2^{nd}$ line	Substituting into Eq. (7.1.15) yields	no	yes
from bottom			
534/(3)(a)	\dots Eqs. (5.2.48), (5.2.75), show that the local wavenumber	yes	no
552/Cell 7.50	Reproduction error in the figure, 2 nd printing only.	no	no
562/(4)(b)	form of solition solutions for which $f \to 0$ as $s \to 0$ and $f \to 2\pi$	yes	yes
562/(5)	allowing steady solutions and solitons	yes	yes
	last line replaced: Show that solitons of the form		
	$\psi(x,t) = e^{i(kx-\omega t)} f(x-2kt)$ exist provided that $\omega < k^2$, and find the		
	form of <i>f</i> .		
564/(9)	For the initial conditions take $f(x,0) = 3\sin(\pi x / L)$ and $\dot{f}(x,0) = 0$.	no	yes
588/(9)(a)	by a Poisson distribution.	yes	no
590/13(f)	< <i>s</i> ² >	yes	no
590/(13)(i)	Explain why this quantity is positive. for short times, but vanishes at	no	yes
	large times $t_{\mu} >> \gamma^{-1}$.		
590/(13)(j)	Solution: $\langle x_n^2 \rangle = 2D_V \Delta t^3 \frac{n(1-\alpha^2) - (1-\alpha^n)(1+2\alpha-\alpha^n)}{(1-\alpha)^3(1+\alpha)} + \langle x_n \rangle^2$	no	yes
593/Eq. (8.2.3)	<>>	yes	no
		<i>u</i>	
599/Cell 8.12	Show[h,t,DisplayFunction->\$DisplayFunction]; $\rho(x,n) = a(a x / 2)^{n-1/2} K_{1/2-n}(a x) / \sqrt{\pi}(n-1)!$	yes	no

610/(7)(a)	is a random step in velocity with zero mean, $\langle s \rangle = 0$. Solve	no	yes
	$\left\langle v_{n}v_{n+m}\right\rangle = v_{0}^{2}\alpha^{2n+m} + \left\langle s^{2}\right\rangle\alpha^{m}\frac{1-\alpha^{2n}}{1-\alpha^{2}}, \ m \ge 0$		
622	Caustics	yes	no
627	new listing under Hermitian operators:	yes	yes
	finite-differenced, 6.3 Exercise 3		
631	New listing:	no	yes
	Resonance, 82 106		
	Exact, 82, 110, 120, 122, 295, 296		

Last updated December 7, 2006. List available on the web at http://sdpha2.ucsd.edu/namethods/Corrections.pdf