

Numerical Methods for Chemical Engineers
with MATLAB Applications
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These are the errata for the 2nd and 3rd printing of this book. Please make these corrections to your copy of the book.

<u>Page</u>	<u>Location</u>	<u>Correction</u>
29	Line 7	Change "temperatures" to "pressures"
50	Line 13	Change "TOL or TRACE" to "RHO or TOL"
61	Line 3	Change "... water at 50°C ..." to "... water at 20°C..."
62	Line 4	Change "Davidson, B. D." to "Davidson, B. Z."
64	Eq. (2.6)	Change " V_i " to " V_j "
91	Eq. (2.108)	Replace " c_{ij} " with " c_i "
91	Eq. (2.109)	Delete \sum at the beginning of the equation
122	Line below Eq. (2.148)	Change " $(A - \lambda x)$ " to " $(A - \lambda I)$ "
122	Eq. (2.152)	Change " $-a_n$ " to " $-a_n \mathbf{I}$ "
147	Eq. (3.14)	Change " $(h^3/3!)Dy(x)$ " to " $(h^3/3!)D^3y(x)$ "
156	Eq. (3.68)	Change " δ_{i+1} " to " δy_{i+1} "
157	Eq. (3.70)	Change " $-y_{i-1/2}$ " to " $-10y_{i-1/2}$ "
179	Eq. (3.133)	Change " $p_k(x)$ " to " $p_k(x_i)$ "
182	Eq. (3.145)	Change " y'_{i-1} " to " y'_{i+1} "
215	After line 20	Add: "options = optimset;"
215	Line 21	Replace "phi = fzero(phifile,1,[], [], x0)" with "phi = fzero(phifile, 1, options, x0);"
217	Line 9	Remove the command "break"
222	Line 16	Change " $(-dp-0*rhog*g)$ " to " $(-dp-rhog*g)$ "
222	Lines 4-5 in deriv.m	Replace with: % DERIV(Y) calculates the first-order derivative % of each column of matrix Y by central finite % differences,using unity as the independent % variable interval. If Y is a row vector, then Y % is converted to a column vector.
223	Line 26	Change "(err ~= 2 err ~= 4)" to "(err == 2 err == 4)"
227	Line 12	Change "... = 3.26%" to "... = 3.21%"
231	Figure 4.2	Change the labels on the horizontal axis from " $x_1 \quad x_0$ " to " $x_0 \quad x_1$ "
235	Eq. (4.83)	Change upper limit on the two integrals from " x_2 " to " x_3 "
243	Eq. (4.93)	Move this equation one line down (below the line "For converting to")
243	Eq. (4.92)	This equation is missing: $(x - a)/(b - a) = (z - c)/(d - c)$ Add it in the place previously occupied by Eq. (4.93):

251	Middle of page	Delete " Initial value of "
271	Bottom line	Change " $= dy_3 / dt$ " to " $= dy_3 / dx$ "
279	Lines 5,6	Enter " method =1; " between lines 5 and 6
279	Line 12	Delete " method =1; " at line 12
283	Line 3 (bottom of page)	Change "The vector of dependent variable" to "The vector of independent variable"
294	Eq. (5.96)	Last term is " $9f(x_{i-3}, y_{i-3})$]"
294	Eq. (5.97)	Last term is " $f(x_{i-2}, y_{i-2})$]"
295	Line 3	Change "value" to "values"
301	Line 6	Change "F(X,P1,P2,...)" to "F(X,Y,P1,P2,...)"
301	Line 2 (bottom of page)	Change "F(X,P1,P2,...)" to "F(X,Y,P1,P2,...)"
302	Line 4 (bottom of page)	Change "F(X,P1,P2,...)" to "F(X,Y,P1,P2,...)"
304	Line 12 in Adams.m	Change "F(X,P1,P2,...)" to "F(X,Y,P1,P2,...)"
305	Line 13 in AdamsMoulton.m	Change "F(X,P1,P2,...)" to "F(X,Y,P1,P2,...)"
314	Line 1 (bottom of page)	Change " $t_1=4.36$ " to " $t_1=4.36e-2$ "
315	Eq. (2)	The term $\left(\frac{d\Phi}{d\eta}\right)$ in the denominator should be raised to the power of 2.
315	Eq. (3)	The term y_1 in the denominator should be raised to the power of 2.
317	Line 17 (bottom of page)	Change "Inside diameter" to "Inside radius"
317	Line 4 (bottom of page)	Change "/vmax" to "/vstar"
318	Line 13	Change " $\lambda^2*y(1)$ " to " $\lambda^2*y(1)^2$ "
320	Middle of page	Change "Inside diameter" to "Inside radius"
320	Bottom of page	Change "Volumetric flow rate = 2.91" to "Volumetric flow rate = 8.00"
320	Line 2 (Discussion of Results)	Change "2.91 L/s" to "8.00 L/s"
321	Figure E5.4b	Has changed because of the above changes to the program.
328	Eq. (5.151a & b)	Change "j=0" to "i=0" under the summation signs
334	Line 4 (bottom of page)	Add: "options = optimset;"
334	Line 3 (bottom of page)	Replace "theta(k) = fzero(fth,30,1e-6,0, y(:,k),w)" with "theta(k) = fzero(fth,30,options, y(:,k),w);"
335	Line 22	Add: "options = optimset;"
334-335		Example5_5.m and Ex5_5_func.m have changed. Please download the updated software and re-install.

335	Line 23	Replace "theta = fzero(fth,30,1e-6,0, y,w)" with "theta = fzero(fth,30,options, y,w);"
345	Middle of page (above Eq. (5.189))	Change "implicit Euler" to "explicit Euler"
350	Eq. (5.223)	Change " y_{n+2} " to " y_{n+1} " on the left-hand-side
356	Line 1 (bottom of page)	Delete ".1"
357	Problem 5.7 Line 2	Change "Lokta" to "Lotka"
372	Line 1	Change "independent" to "dependent"
383	Part (b)	Change the partial derivative in the 4th boundary condition to be with respect to y (not x)
385-393		Example6_1.m and elliptic.m have been changed. Please go to http://sol.rutgers.edu/~constant to obtain software updates.
407	Line 10	Change "DY = " to "DT = "
413-416		Example6_3.m has been changed. Please go to http://sol.rutgers.edu/~constant to obtain software updates.
416	Line 15 from bottom	Change " by Crank-Nicolson implicit " to " by explicit (6.66) "
469	Line 1	Change "in independent" to "is independent"
477	Eq. (7.114)	Move equation down one line (below the first line of item 2.)
508	Line 10	Change " independent " to " dependent " (Note: The MATLAB script, Example7_1.m, should also be modified. You may make the change yourself or download the updated software from http://sol.rutgers.edu/~constant and re-install.