Errata to S. J. Colley, *Vector Calculus*, first printing

February 1, 2001

p. 9, Exercise 18 §1.1.	The second sentence should end as follows: "... adjacent sides are parallel to $\mathbf{a}$ and $\mathbf{b}$ and have the same lengths as $\mathbf{a}$ and $\mathbf{b}$."
p. 26, line 6.	Replace 9.48 by 9.8.
p. 47, lines -19, -16.	Replace the vector $-8\mathbf{i} - \mathbf{j} + 5\mathbf{k}$ by $-7\mathbf{i} - \mathbf{j} + 5\mathbf{k}$.
p. 47, line -14.	Replace the equation "$x = -8t - 2$" (first equation in displayed set) by "$x = -7t - 2$".
p. 58, line -3.	Replace matrix $\begin{bmatrix} 20 & 13 \\ 47 & 14 \end{bmatrix}$ by $\begin{bmatrix} 20 & 13 \\ 47 & 28 \end{bmatrix}$.
p. 99, Exercise 9, §2.1.	Replace the first sentence of the exercise by: "Consider the mapping that assigns to a nonzero vector $\mathbf{x}$ in $\mathbf{R}^3$ the vector of length 2 that point in the direction opposite to $\mathbf{x}$."
p. 111, line -4.	Replace $f(\mathbf{x})$ by $\mathbf{f}(\mathbf{x})$.
p. 118, line 3.	Replace $(x^2 - a_2^2)/(x^2 - a_2^2)$ by $(x^2 - a_2^2)/(x^2 + a_2^2)$.
p. 124, Example 7, §2.3.	In line 2 of the example, replace the expression $(x^2 - y^2)/(x^2 + y^2)$ in the definition of f by $x^2y^2/(x^4 + y^4)$. In line 7 of the example, replace "$f(x, 0) = (x^2 - 0)/(x^2 + 0) \equiv 1$" by "$f(x, 0) = 0/(x^4 + 0) \equiv 0$". In line 9 of the example, replace "$f(0, y) = (0 - y^2)/(0 + y^2) \equiv -1$" by "$f(0, y) = 0/(0 + y^4) \equiv 0$".
p. 155, Exercise 9, §2.5.	Right-hand side of the displayed equation should be 0.
p. 156, Exercise 15(a), §2.5.	Formula (9) should be formula (10).
p. 167, line 16.	Replace "closed" with "close".
p. 172, Exercise 32(b), §2.6.	Replace "$F(x, y, z) - xyz + 1$" by "$F(x, y, z) = xyz + 1$."
p. 174, Exercise 12, §2.7.	Replace $(2, 12)$ by $(2, 1, 2)$.
p. 190, Exercise 16, §3.1.	In parts (a) and (b), replace "initial velocity" by "initial speed".
p. 215, Exercises 18 and 19, §3.3.	Replace "$\phi : \mathbf{R}^2 \times \mathbf{R} \to \mathbf{R}$" by "$\phi : \mathbf{R}^2 \times \mathbf{R} \to \mathbf{R}^2$".

p. 216, Exercise 20, §3.3.	Replace "$\phi : \mathbf{R}^3 \times \mathbf{R} \to \mathbf{R}$" by "$\phi : \mathbf{R}^3 \times \mathbf{R} \to \mathbf{R}^3$".
p. 291.	Page header should be "Section 5.1 / Introduction: Areas and Volumes."
p. 348, Exercise 4, §5.5.	The vertex $(4,-1)$ of D should be $(4,1)$.
p. 366, Exercise 6, §5.7.	The integral should be $\int_0^4 \int_0^{\sqrt{4y-y^2}} \int_{-\sqrt{16-x^2-y^2}}^{\sqrt{16-x^2-y^2}} dz\,dx\,dy$.
p. 385, Exercise 24, §6.1.	Change equation of the sphere from $x^2+y^2+z^2=a^2$ to $x^2+y^2+z^2=c^2$.
p. 390, line 23.	Replace $\alpha(x)$ and $\beta(x)$ by (respectively) $\alpha(y)$ and $\beta(y)$.
p. 443, line -9.	Integral should be $\int_0^5 \int_0^{2\pi} \frac{1}{2}(16\cos^4 s + 16\sin^4 s)2ds\,dt$.
p. 443, lines -8, -7, -6.	Replace 8 by 16.
p. 443, line -4.	Replace $\frac{8}{4}$ by $\frac{16}{4}$.
p. 443, line -3.	Integral should be $\int_0^5 \int_0^{2\pi} (8+4(1+\cos 4s))\,ds\,dt$.
p. 443, last line.	Should read: $= \int_0^5 (12s+\sin 4s)\|_{s=0}^{2\pi}\,dt = \int_0^5 24\pi\,dt = 120\pi$.
p. 447.	Page header should be "Section 7.2 / Surface Integrals."
p. 455, lines 8, 12, -19.	Replace $\oint_{C_a} \mathbf{F}\cdot d\mathbf{S}$ by $\oint_{C_a} \mathbf{F}\cdot d\mathbf{s}$.
p. 456, lines 3, -7.	Replace $\oint_{C_a} \mathbf{F}\cdot d\mathbf{S}$ by $\oint_{C_a} \mathbf{F}\cdot d\mathbf{s}$.
p. 457, lines 3, -12.	Replace $\oint_{C_a} \mathbf{F}\cdot d\mathbf{S}$ by $\oint_{C_a} \mathbf{F}\cdot d\mathbf{s}$.
p. 460, line 3.	Replace $\oint_{\partial S} \mathbf{F}\cdot d\mathbf{S}$ by $\oint_{\partial S} \mathbf{F}\cdot d\mathbf{s}$.
p. 460, line -8.	Formula (7) should be $\iint_{S_1} \nabla\times\mathbf{F}\cdot d\mathbf{S} = \oint_{\partial S_1} \mathbf{F}\cdot d\mathbf{s} = \int_{C_1} \mathbf{F}\cdot d\mathbf{s} + \int_C \mathbf{F}\cdot d\mathbf{s}$.
p. 460, line -6.	Formula (8) should be $\iint_{S_2} \nabla\times\mathbf{F}\cdot d\mathbf{S} = \oint_{\partial S_2} \mathbf{F}\cdot d\mathbf{s} = \int_{C_2} \mathbf{F}\cdot d\mathbf{s} - \int_C \mathbf{F}\cdot d\mathbf{s}$.
p. 460, last line.	Equation should read $\int_{C_1} \mathbf{F}\cdot d\mathbf{s} + \int_{C_2} \mathbf{F}\cdot d\mathbf{s} = \oint_{\partial S} \mathbf{F}\cdot d\mathbf{s}$.

p. 461, line -19.	Line should read $\oint_{\partial S} M\,\mathbf{i}\cdot d\mathbf{s} + \oint_{\partial S} N\,\mathbf{j}\cdot d\mathbf{s} + \oint_{\partial S} P\,\mathbf{k}\cdot d\mathbf{s}$.
p. 461, line -17.	Line should read $\oint_{\partial S} (M\mathbf{i} + N\mathbf{j} + P\mathbf{k})\cdot d\mathbf{s} = \oint_{\partial S} \mathbf{F}\cdot d\mathbf{s}$.
p. 467, Exercise 24(a), §7.3.	Display should be $\mathbf{e}_z\cdot \operatorname{curl}\mathbf{F} = -\frac{1}{r}\frac{\partial F_r}{\partial \theta} + \frac{1}{r}\frac{\partial}{\partial r}(rF_\theta)$.
p. 479, line 10.	Delete equation label (29).
p. 479, line 11.	Change equation label (30) to (29).
p. 481, Exercise 8, §7.4.	Change equation labels (31) and (32) to, respectively, (30) and (31).
p. 481, Exercise 8, §7.4, last line before part (a).	Change "(32)" to "(31)".
p. 513, Answer to Exercise 17(c), §2.4.	The degree of $\partial^k p/\partial x_{i_1}\cdots\partial x_{i_k}$ is $d-k$ where d is the highest degree of a term of p of the form $x_1^{d_1}x_2^{d_2}\cdots x_n^{d_n}$ such that, for $j=1,2,\ldots,n$, d_j is at least the number of times x_j occurs in the partial derivative. If p has no such term, then the degree of $\partial^k p/\partial x_{i_1}\cdots\partial x_{i_k}$ is undefined.
p. 515, Answer to Exercise 27, §2.6.	$x_1 + x_2 + \cdots + x_{n-1} - x_n = \sqrt{n}$
p. 517, Answer to Exercise 13, §3.2.	The torsion τ should be $\frac{1}{3\sqrt{1-t^2}}$.
p. 519, Answer to Exercise 7(e), §3.5.	The figure should be reflected about the line $y = x$.
p. 519, Answer to Exercise 21(b), §4.1.	$-4-4(x-1)+11(y+1)-z+\frac{1}{2}\left[4(x-1)^2 + 16(x-1)(y+1) - 12(y+1)^2 - 2z^2\right] + \frac{1}{6}\left[18(x-1)^3 + 24(x-1)^2(y+1) - 6(x-1)z^2 + 12(y+1)^3\right]$
p. 524, Answer to Exercise 19, §6.2.	The line integral is ± 3 times the area of the rectangle where the sign depends on the orientation of the boundary.