Errata for *Integrated Physics and Calculus*

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Note: "Line $-n$" means the nth line from the bottom of the page.

p. 145, line -10	wand → want	8/24/00
p. 164, Problem 16, line 3	$t'(u)$ not equal to zero → $t'(u) > 0$	8/24/00
p. 195, Example 6.1, first sentence of solution	All derivatives appear to first-order, so the equation is first-order. → All derivatives appear to the first power, so the equation is linear.	8/24/00
p. 206, line -7	left side → right side	8/24/00
p. 213, line -15	unity → unit	8/24/00
p. 285, line -9	acceleration component v_x → acceleration component a_x	8/24/00
p. 287, Theorem 8.4	Theorem 8.4 should read	8/24/00

Theorem 8.4. *Let f be a function that is twice differentiable for all x in $[a, b]$. If K is a positive number such that*

$$-K \leq f''(x) \leq K$$

for all x in $[a, b]$, then

$$f(a) + \frac{f(b) - f(a)}{b - a}(x - a) - \frac{K(x - a)(b - x)}{2} \leq f(x) \leq f(a) + \frac{f(b) - f(a)}{b - a}(x - a) + \frac{K(x - a)(b - x)}{2} \qquad (8.13)$$

for all x in $[a, b]$.

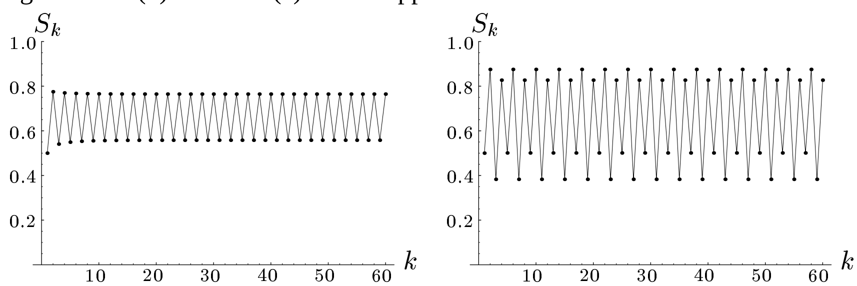
p. 287, line 8	With K equal to the maximum of $\lvert m\rvert$ and $\lvert M\rvert$, → Rearranging and using absolute values,	8/24/00
p. 297, line -7	$\int_{x_{i-1}}^{x_i} K_i(x - x_{i-1})(x_i - x)\,dx \rightarrow \int_{x_{i-1}}^{x_i} \frac{1}{2}K_i(x - x_{i-1})(x_i - x)\,dx$	8/24/00
p. 297, line -4	$\int_{x_{i-1}}^{x_i} K_i(x - x_{i-1})(x_i - x)\,dx \rightarrow \int_{x_{i-1}}^{x_i} \frac{1}{2}K_i(x - x_{i-1})(x_i - x)\,dx$	8/24/00
p. 323, Figure 9.12(b)	$v_1 \rightarrow u_1$, $v_2 \rightarrow u_2$	8/24/00
p. 324, line 5	$0 = mvu_1 \cos\frac{\pi}{6} - mu_2 \cos\alpha \rightarrow 0 = mu_1 \sin\frac{\pi}{6} - mu_2 \sin\alpha$	8/24/00
p. 324, line 17	$\vec{v}_0 = v\vec{u}_1 + \vec{u}_2 \rightarrow \vec{v}_0 = \vec{u}_1 + \vec{u}_2$	8/24/00

p. 379, last paragraph, continuing on p. 381 — 8/24/00

The paragraph should read as follows:
A little experimentation reveals that this model has a wide variety of behavior depending on the choice of the parameter β. Some examples are shown in Figure 11.3 for the values $\beta = 2.4, 2.8, 3.1, 3.5,$ and 3.9. For $\beta = 2.4$ [Figure 11.3(b)], we see successive elements in the sequence increasing to a limiting value of about 0.58. This behavior is similar to that of the case with $\beta = 1.1$, except the values increase to the limit rather than decrease. For $\beta = 2.8$ [Figure 11.3(c)], the sequence again tends to a single limit value but in quite a different manner with successive values oscillating between being greater than and less than the apparent limit value of about 0.64. A different behavior altogether appears with $\beta = 3.1$, as seen in Figure 11.3(d). In this case, the sequence does not appear to converge to a single limit value but rather settles down to oscillating between two distinct values at approximately 0.56 and 0.77. A close look at the $\beta = 3.5$ case in Figure 11.3(e) reveals similar oscillatory behavior but now with one cycle including *four* distinct values. Finally, in the $\beta = 3.9$ case [Figure 11.3(f)], no regular pattern is evident.

p. 380, Figure 11.3 — 8/24/00

Figures 11.3 (d) and 11.3 (e) should appear as follows.



(d) $\beta = 3.1$ (e) $\beta = 3.5$

p. 383, line 2 of Section 11.2.1 — 8/24/00

$\mathbb{N} = \{0, 1, 2, 3, \dots\} \to \mathbb{N} = \{1, 2, 3, \dots\}$

p. 392, line 10 — 8/24/00

$1/(1-p) \to 1/(p-1)$

p. 450, line 1 — 8/24/00

line $\to$ plane

p. 450, line -4 — 8/24/00

in two places: $-D/A \to -D/C$

p. 456, line 9-10 — 8/24/00

a infinite number of values for $\arcsin 0.5 \to$ infinitely many values of $\arcsin 0.5$

p. 461, line -8 — 8/24/00

desribes $\to$ describes

p. 463, line 4 — 8/24/00

The text following the first display should read:
Fix the parameters a, b, and c while considering d as varying from 1 to -1. Think of the corresponding surfaces in animation with d serving as the time (running backward from $d = 1$ to $d = -1$). At $d = 1$, we see a one-sheet hyperboloid. As d decreases, the neck of the one-sheet hyperboloid contracts in toward the origin. For $d = 0$, the neck pinches down to the origin itself and the surface is an elliptic cone. As d continues to decrease (and is now negative), the surface splits into a two-sheet hyperboloid.

p. 468, line -8	$\lim_{u\to K}\cos(u) = K \to \lim_{u\to K}\cos(u) = \cos(K)$	8/24/00
p. 487, first display	Should read: $\tilde{f}(x,y) = \begin{cases} f(x,y) & \text{if } (x,y) \text{ is in } R \\ 0 & \text{if } (x,y) \text{ is in } \tilde{R} \text{ but not in } R. \end{cases}$	8/24/00
p. 498, line -12	The third coordinate is z is the same $\to$ The third coordinate is the same	8/24/00
p. 502, line 6	by integrating the the function $\to$ by integrating the function	8/24/00
p. 583, first display	in denominator: $x - a \to x + a$	8/24/00
p. 605, line -9	$\partial/\partial x \to \partial/\partial y$	8/24/00
p. 606, last display	$\left.\frac{\partial f}{\partial y}\right\|_{1,\pi} \to \left.\frac{\partial f}{\partial y}\right\|_{(1,\pi)}$	8/24/00
p. 643, first display	$f_{xxx}(x,y) = \frac{\partial^3 f}{\partial x^3}\frac{\partial}{\partial x}\left[\frac{\partial^2 f}{\partial x^2}\right] \to f_{xxx}(x,y) = \frac{\partial^3 f}{\partial x^3} = \frac{\partial}{\partial x}\left[\frac{\partial^2 f}{\partial x^2}\right]$	8/24/00
p. 742, second display	in two places: $\sin\theta_i \to \cos\theta_i$	8/24/00
p. 752, Problem 8 of Section 22.1	radius $4 \to$ radius $2\sqrt{2}$	8/24/00
p. 847, Line 1	continuous partial derivatives $\to$ continuous second partial derivatives	8/24/00
p. 847, Line 11	Theorem 25.2 $\to$ Theorem 22.3	8/24/00
p. 902, Line -12	for all (x,y) in $\mathbb{R} \to$ for all (x,y) in $\mathbb{R}^2$	8/24/00
p. 905, Line -12	throught $\to$ through	8/24/00
p. AN-5, Volume 2, Section 22.2, Problem 5	$8 \to -8$	8/24/00
p. AN-5, Volume 2, Section 22.3, Problem 5	$\frac{1}{2}x^2 + \frac{1}{2}y^2 + \sin x \to xy + \sin x$	8/24/00
p. AN-5, Volume 2, Section 23.2, Problem 15	$\sqrt{2}v \to \sqrt{2}\|v\|$	8/24/00