ADDITIONAL CORRECTIONS TO SECOND YEAR CALCULUS, 4TH PRINTING

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Thanks to Pantaleo (Leo) deCandia, Tom Meyer, and Matthew Peavy

Page 35. "...vectors is always 0 ,and therefore, ..." The space should be inserted before the comma and not after

Page 73. It has been pointed out that rockets don't have afterburners. Second line from bottom should simply refer to acceleration.

Page 149. "The problem before us it how to define..." 'it' should be 'is'

Page 165. On the top of page 165, instead of saying

$$dx_1 \cdots dx_{m-1} = sgn(\tau) dx_{\tau(1)} \cdots dx_{\tau(m)}$$

it should say

$$dx_2 \cdots dx_m = sgn(\tau) dx_{\tau(1)+1} \cdots dx_{\tau(m-1)+1}$$

Then, the right hand side of this equation, multiplied by dx_1 can be equated to:

$$dx_1 \cdots dx_m = (-1)^{(i-1)} sgn(\sigma) dx_1 dx_{\sigma(1)} \cdots dx_{\sigma(i-1)} dx_{\sigma(i+1)} \cdots dx_{\sigma(m)}$$

giving:

$$dx_1 dx_{\sigma(1)} \cdots dx_{\sigma(i-1)} dx_{\sigma(i+1)} \cdots dx_{\sigma(m)} (-1)^{(i-1)} sgn(\sigma) =$$

$$dx_1 dx_{\tau(1)+1} \cdots dx_{\tau(i-1)+1} dx_{\tau(i)+1} \cdots dx_{\tau(m-1)+1} sgn(\tau)$$

and the translation between sigma and tau will give equation (6.30), since for terms where the argument to σ ranges from 1 to i, the applicable formula is $\sigma(j) = \tau(j) + 1$, so we have: $\sigma(1) = \tau(1) + 1$, and $\sigma(i-1) = \tau(i-1) + 1$, and for terms where the argument to σ ranges from i+1 to m, the applicable formula is $\sigma(j) = \tau(j-1) + 1$, so we have: $\sigma(i+1) = \tau(i+1-1) + 1 = \tau(i) + 1$, and $\sigma(m) = \tau(m-1) + 1$

Pages 240–241. Equation (9.10) is incorrect. In (9.9), define the scalar field $f_k(\Delta\vec{x})$ to be the kth coordinate of $|\Delta\vec{x}|\,\vec{E}(\vec{c}, \Delta\vec{x})$, which is the kth coordinate of $\vec{F}(\vec{c}+\Delta\vec{x}) - \vec{F}(\vec{c}) - \vec{L}_c(\Delta\vec{x})$, and therefore is continuously differentiable at $\vec{0}$.

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As at the bottom of page 240 and top of page 241, we use the mean value theorem to conclude that

$$\left| f_k(\vec{a}-\vec{c}) - f_k(\vec{b}-\vec{c}) \right| \le \frac{\mu}{2\sqrt{n}} |\vec{a}-\vec{b}|,$$

and therefore

$$\left| |\vec{a}-\vec{c}| \vec{E}(\vec{c},\vec{a}-\vec{c}) - |\vec{b}-\vec{c}| \vec{E}(\vec{c},\vec{b}-\vec{c}) \right| \le \frac{\mu}{2} |\vec{a}-\vec{b}|.$$

"...then we can solve for df is terms of.." 'is' should be 'in'

Page 272.

Page 306. "This is true of the flow of most fluids..." This should be 'liquids' and not 'fluids', since a fluid can be either a liquid or a gas. Gasses are compressible, so it's technically incorrect to use the word 'fluids' when describing something incompressible. Most people understand fluids to only be liquids, but air (for example) is technically a fluid, and it is very compressible.

Page 359. The left side of equation (11.70) should be $-\mathbf{J}(\mathbf{E} - c^2\mathbf{B}dt)$