Test 1: Linux and its Applications

August 26, 2007

TIME 1 HR

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1. Write the following in a Latex document.

(a) ÆBUTIUS LIBERALIS. (b) Könng (c) numérous (d) faûlts (e) vèrse (f) Señor

2. Write the following with numbering/nonumbering

(a)

$$\begin{aligned}\mathbf{F} &= m\mathbf{a} \\ &= \frac{\mathrm{d}}{\mathrm{d}t}(m\mathbf{v}) \\ &= m\frac{\mathrm{d}\mathbf{v}}{\mathrm{d}t} + v\hat{\mathbf{v}}\frac{\mathrm{d}m}{\mathrm{d}t}\end{aligned} \tag{1}$$

(b)

$$B_r = \frac{\mu_0 m\,\cos\theta}{2\pi r^3} \qquad \text{and} \qquad B_\theta = \frac{\mu_0 m\,\sin\theta}{4\pi r^3}$$

and $\frac{B_\theta}{B_r}$ is given by

$$\frac{B_\theta}{B_r} = \frac{\sin\theta}{2\cos\theta} = \frac{1}{2}\tan\theta$$

(c)

$$\oiint_{\mathcal{S}} \vec{D} \bullet \mathrm{d}\tilde{\mathrm{S}} = \iiint_{\mathcal{V}} \rho_v \mathrm{dV} \tag{2}$$

3. Draw the following figure in Xfig.

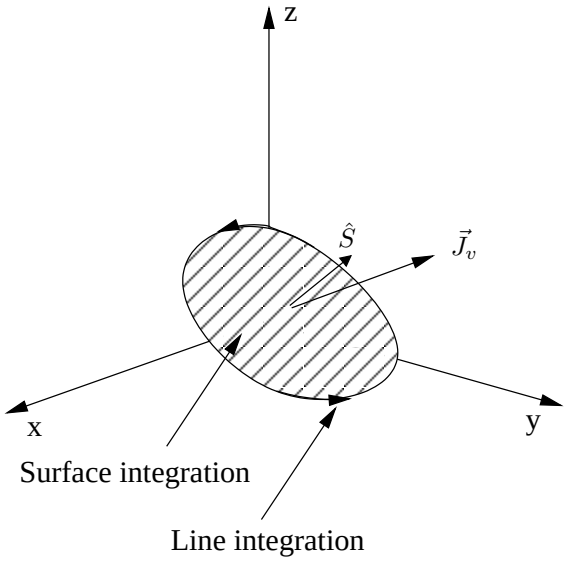

Figure 1: Ampère's law $\oint\limits_{cntr-clk-wise} \vec{H} \bullet d\vec{l} = \iint \vec{J}_v \bullet d\vec{S}$