Note Title 1/13/2006

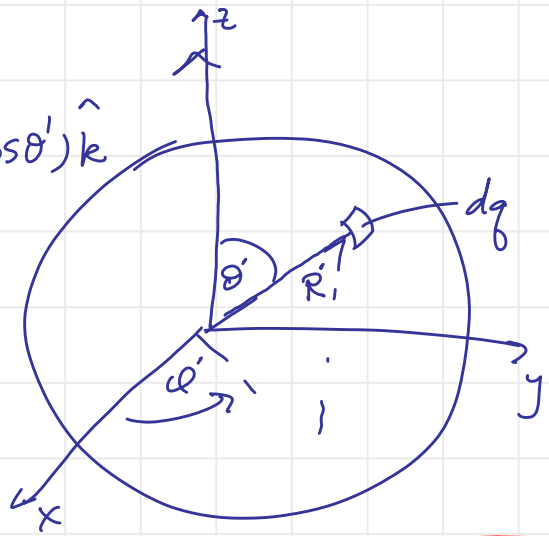
$\vec{r}$ is

(1) $R'\sin\theta'(\cos\phi'\hat{i}+\sin\phi'\hat{j})+(z+R'\cos\theta')\hat{k}$

✓(2) $-R'\sin\theta'(\cos\phi'\hat{i}+\sin\phi'\hat{j})+(z-R'\cos\theta')\hat{k}$

(3) none

(4) don't know



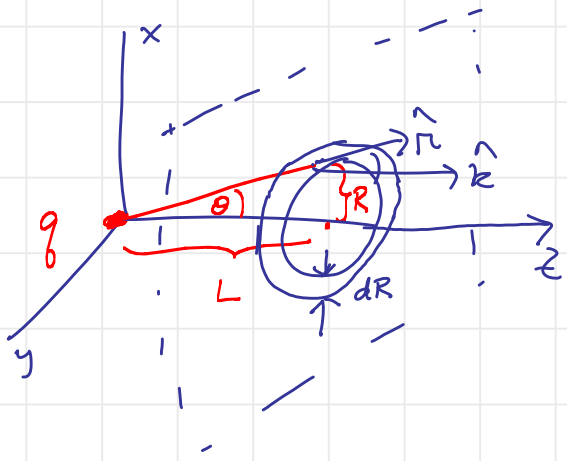
$\vec{E}\cdot d\vec{a}$ is

✓(1) $\frac{q}{4\pi\epsilon_0}\frac{1}{R^2+L^2}\,2\pi R\,dR\,\frac{L}{\sqrt{R^2+L^2}}$

(2) $\frac{q}{4\pi\epsilon_0}\frac{1}{R^2+L^2}\,2\pi R\,dR$

(3) none

(4) don't know



$r=\sqrt{R^2+L^2}$

$d\vec{a}=2\pi R\,dR\,\hat{k}$

$\vec{E}=\frac{q}{4\pi\epsilon_0}\frac{\hat{r}}{r^2}$

$$\vec{E} \cdot d\vec{a} \; \frac{q}{4\pi\epsilon_0 r^2} \hat{r} \cdot 2\pi R \, dR \, \hat{k} \qquad \frac{L}{\sqrt{R^2+L^2}}$$

$$\hat{r} \cdot \hat{k} = \underbrace{|\hat{r}|}_{1} \underbrace{|\hat{k}|}_{1} \cos\theta$$