Phys Final #2

~~Josh~~ Whitehead
U10693343

a.) $\vec{B} = \frac{\mu_0 I}{4\pi}\int \frac{d\vec{s}\times\hat{r}}{r^2}$

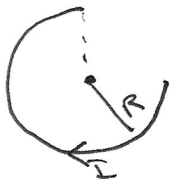
$\vec{B}_1 = \vec{B}_2 = 0$

$d\vec{s}\times\hat{r} = ds \cdot r \cdot \sin(180) = 0$

---

b) $\vec{B} = \frac{\mu_0 I}{4\pi}\int \frac{d\vec{s}\times\hat{r}}{r^2}$

$d\vec{s} = r \cdot d\theta$



$= \frac{\mu_0 I}{4\pi r^2}\int r\,d\theta \cdot 1$

$= \frac{\mu_0 I}{4\pi r}\int_0^{3\pi/2} d\theta = \frac{\mu_0 I}{4\pi r}\left[\left(\frac{3\pi}{2}\right) - 0\right]$

$= \frac{3\mu_0 I}{8r}$ T

Into the page

---

c) $\vec{B}_{tot} = B_{straight} + B_{straight} + B_{curve} = 0 + 0 + B_{curve} = \frac{3\mu_0 I}{8r}$ T into page

---

D) $F = QvB\sin\theta$

$= QvB\sin(90)$

$= QvB$

UP and ⊗