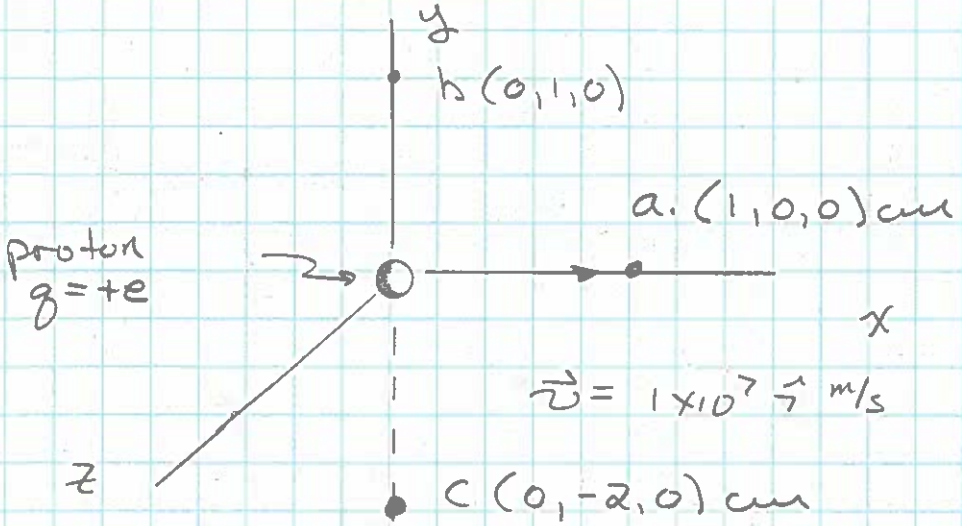


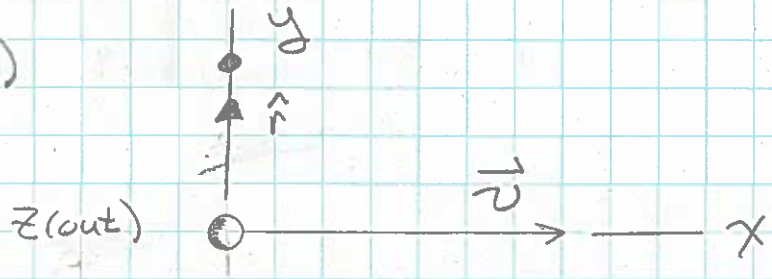
$$\vec{B} = \frac{\mu_0}{4\pi}\,\frac{q\vec{v}\times\hat{r}}{r^2}$$

a.) $r = 1$ cm, $\hat{r} = \hat{i}$

So, $\vec{v}\times\hat{r} = 0$

$\therefore\ \vec{B} = 0$

b.)



$r = 1$ cm

$\hat{r} = \hat{j}$

$$|\vec{v}\times\hat{r}| = v|\hat{r}|\sin 90 = v$$

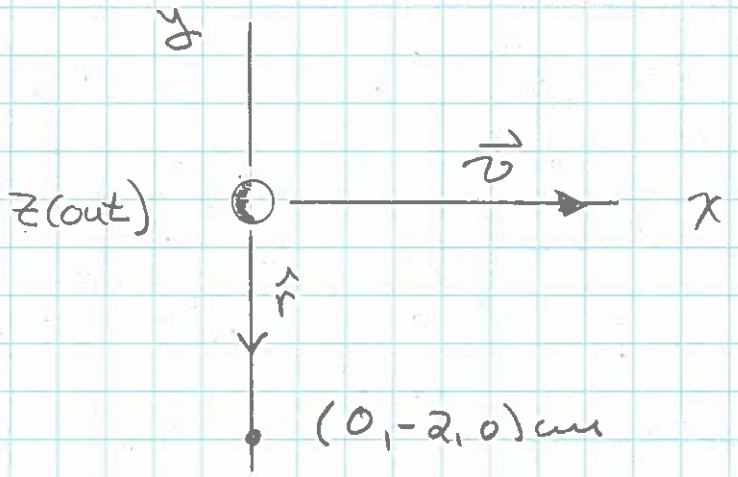
So:

$$|\vec{B}| = \frac{\mu_0}{4\pi}\,\frac{ev}{r^2} = 1.60\times10^{-15}\ \text{T}$$

RHR $\Rightarrow$ $\vec{B}$ is in pos z direction

$\therefore\ \vec{B} = +1.60\times10^{-15}\,\hat{k}\ \text{T}$

c.)



$r = 2\text{ cm}$

$\hat{r} = -\hat{j}$

$|\vec{v} \times \hat{r}| = v|\hat{r}|\sin 90 = v$

$$|\vec{B}| = \frac{\mu_0}{4\pi}\frac{ev}{r^2} = 4.0\times10^{-16}\,T$$

RHR $\Rightarrow$ $\vec{B}$ is in $-z$ direction

$$\vec{B} = -4.0\times10^{-16}\,\hat{k}\;T$$