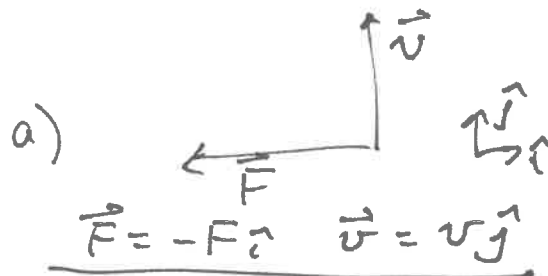


Ch. 11 Prob 20

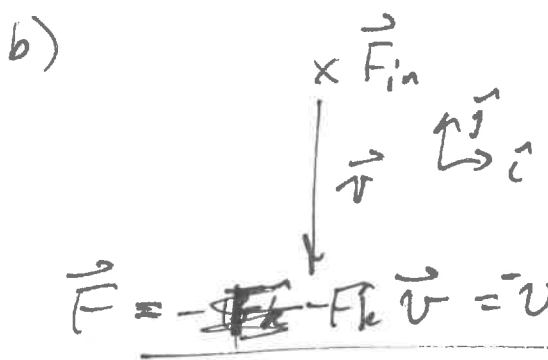
use a negative charge



$$\vec{F} = -|q|(\vec{v} \times \vec{B})$$

$$\vec{F} = -F\hat{i} \quad \vec{v} = v\hat{j} \quad -F\hat{i} = -|q|(v\hat{j} \times \vec{B})$$

By Right Hand Rule (R.H.R.) $\vec{B} = B\hat{k}$ ($+\hat{k}$)



negative charge

$$\vec{F} = -|q|(\vec{v} \times \vec{B})$$

$$\vec{F} = -F\hat{k} \quad \vec{v} = v\hat{j}$$

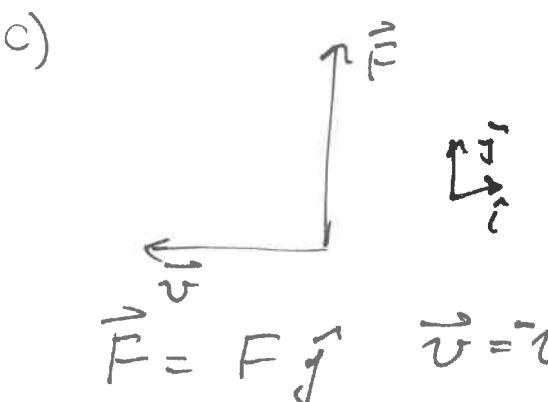
$$-F\hat{k} = -|q|(-v\hat{j} \times \vec{B})$$

$$-F\hat{k} = |q|(v\hat{j} \times \vec{B})$$

$$-F\hat{k} = |q|(v\hat{j} \times B\hat{i})$$

By R.H.R. $\vec{B} = +B\hat{i}$

$+\hat{i}$ direction



negative charge

$$\vec{F} = -|q|(\vec{v} \times \vec{B})$$

$$F\hat{j} = -|q|(-v\hat{i} \times \vec{B})$$

$$\vec{F} = F\hat{j} \quad \vec{v} = -v\hat{i} \quad F\hat{j} = |q|(v\hat{i} \times \vec{B})$$

By R.H.R. $\vec{B} = -B\hat{k}$

so B field is in $-\hat{k}$ direction