46Sample.T2.htm

(4.) **Expanatory stuff**

online solutions: sampletest 2.

$$Q_{out} = Q_a + Q_b$$

$$Q_{in} = Q_a$$

$r < a = 0.15$ (c.)

$$\frac{kQ_{out}}{0.40} + kQ_{in}\left[\frac{1}{0.15} - \frac{1}{0.40}\right]$$

$$\frac{k(Q_a + Q_b)}{0.40} + kQ_a\left[\frac{1}{0.15} - \frac{1}{0.40}\right]$$

$$= \frac{kQ_a}{0.15} + \frac{kQ_b}{0.40}$$

$a = 0.15,\ b = 0.40$

(b.) $q_{out} = q_a + q_b$ $\quad q_{in} = q_a$

$$a < r < b \begin{cases} \dfrac{k q_{out}}{0.40} + k q_{in}\left[\dfrac{1}{r} - \dfrac{1}{0.40}\right] \\ = \dfrac{k(q_a + q_b)}{0.40} + k q_a\left[\dfrac{1}{r} - \dfrac{1}{0.40}\right] \\ = \dfrac{k q_b}{0.40} + \dfrac{k q_a}{r} \end{cases}$$

(c.) $V = \dfrac{k q_{out}}{r} = \dfrac{k(q_a + q_b)}{r}$

$r > b$

Ch 27 magnetic FIELD $\vec{B}$.

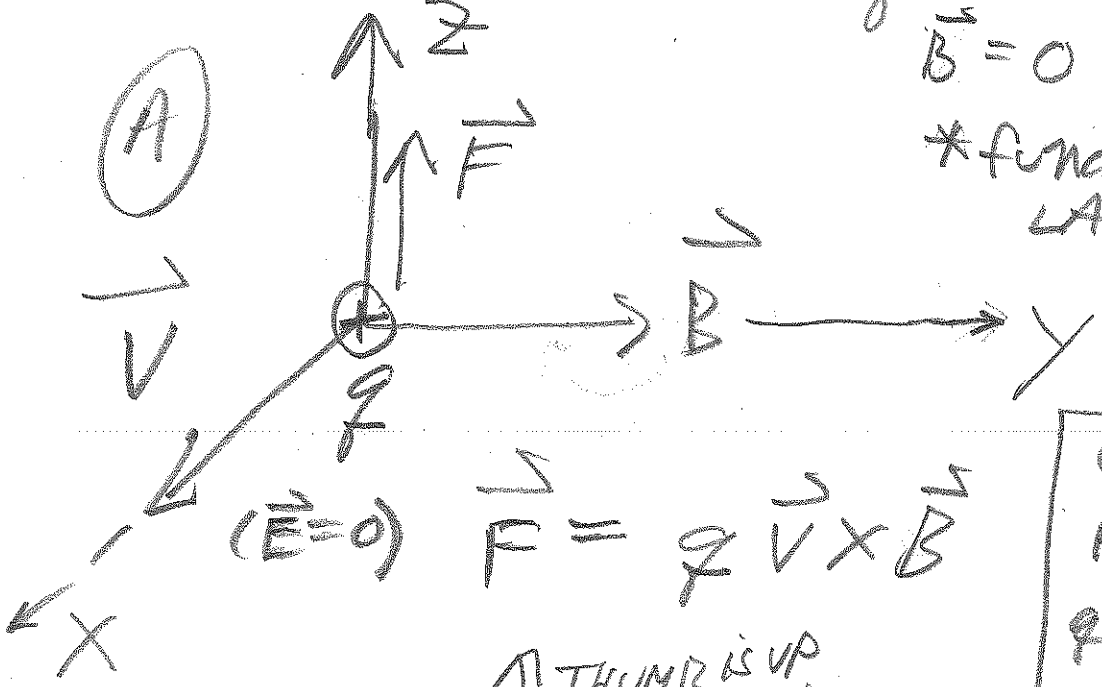
1st effect:

Ch 27 - forces

$$\vec{F} = q(\vec{E} + \vec{v} \times \vec{B})^*$$

$\vec{B} = 0$ for Ch 21-26

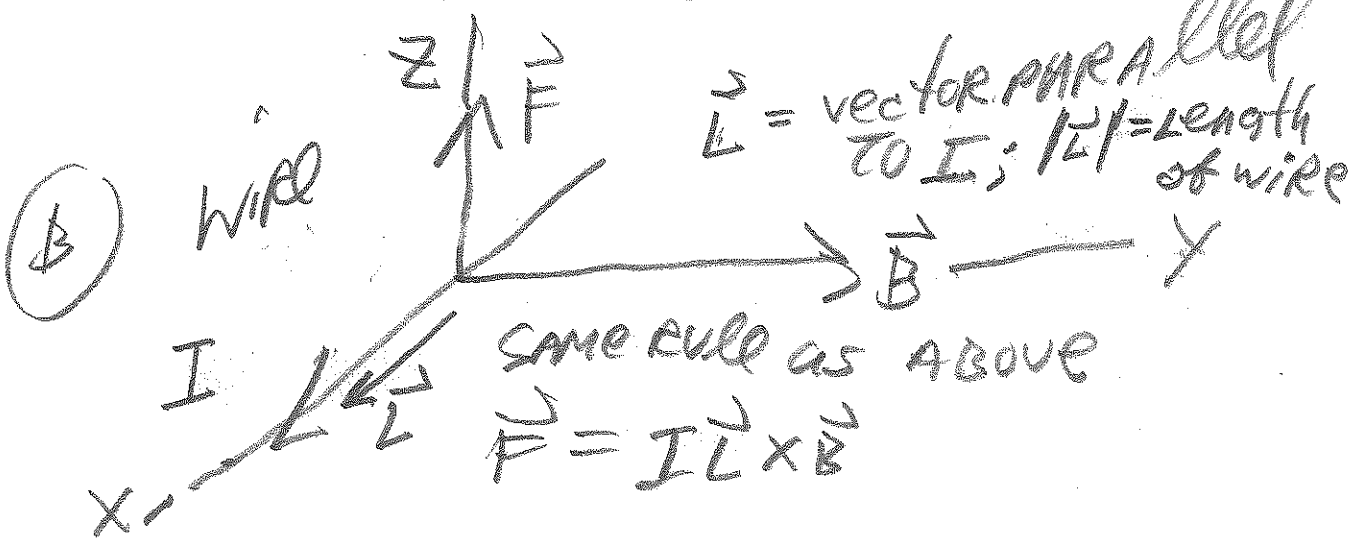
*fundamental Law.



$(\vec{E}=0)$ $\vec{F} = q\vec{v} \times \vec{B}$

Ch 27:
$\vec{F} = q(\vec{E} + \vec{v} \times \vec{B})$

BUT $\vec{E}=0$ often, NOT ALWAYS.



$\vec{L}$ = vector parallel to I; $|L|$ = length of wire

same rule as above

$\vec{F} = I\vec{L} \times \vec{B}$