22V

$$\vec{r}_{iP} : \vec{r}_i : \vec{r}_P : \vec{r}_{iP} = \vec{r}_P - \vec{r}_i$$

$$\vec{E}_P = k \sum_{\varphi} \frac{q_i \vec{r}_{iP}}{r_{iP}^2}$$

$$\Phi_E = \frac{q_{enc}}{\varepsilon_0}$$

$$V = \frac{W}{q} \qquad \vec{E} = \frac{\vec{F}}{q}$$

$$\int_{\Delta V}^{-E} \qquad U_E = \frac{1}{2}\varepsilon_0 E^2 \qquad C = \frac{\varphi}{V}$$

$$p = \Sigma q_i \vec{r}_i$$

$$Z = \sqrt{R^2 + (X_L - X_C)^2}$$

if: $X_L = X_C$

$$\omega_r = \frac{1}{\sqrt{LC}}$$

$X_L = \omega L$, $X_C = \frac{1}{\omega C}$

f:

$\omega = 2\pi f$

$$L = \frac{\Phi_M}{I}$$

$$U_E = \frac{1}{2}\varepsilon_0 E^2$$

$$U_M = \frac{B^2}{2\mu_0}$$

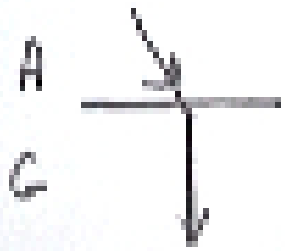
$$\varepsilon = -\frac{\Delta\Phi_M}{\Delta t}$$

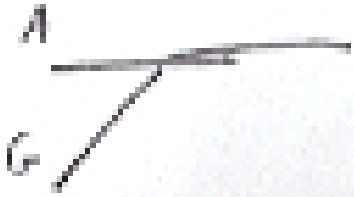
$$U_m = \frac{1}{2}LI^2$$

(1)

$$\sum \vec{B}_i \cdot \Delta\vec{S} = \mu_0 I_c$$

$$\varepsilon_{ind} = -\frac{\Delta\Phi_M}{\Delta t}$$





$n_1 \sin\theta_1 = n_2 \sin\theta_2$

- $m = 2$
- $m = 1$
- $m = 0$ $\quad m = 2.0$ 2
- $m = -1$
- $m = -2$