(22)

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

$\omega = \frac{1}{\sqrt{LC}} = 2\pi f_0$

$f_0 = \frac{1}{2\pi} \cdot \frac{1}{\sqrt{LC}} = \frac{1}{2\pi} \cdot \frac{1}{10 \times 10^{-9}} = 159\,Hz$

$100\,H \cdot 2\pi \approx 6 \times 10^{2} = \omega$

$X_L = \omega L = 6 \times 10^{-3}\,\Omega$

$X_C = \frac{1}{\omega C} = \frac{1}{6 \times 10^{2} \times 1 \times 10^{-5}} = 159\,\Omega$

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

$= \sqrt{100 + (159)^2} = 188\,\Omega$

$$\frac{\mathcal{E}_p}{\mathcal{E}_s} = \frac{N_p}{N_s} \Rightarrow$$

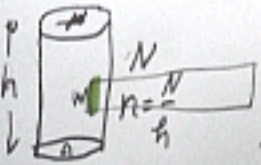
$$\mathcal{E}_s = \mathcal{E}_p \frac{N_s}{N_p} = \mathcal{E}_p \frac{50}{100}$$

$$= 10\left(\tfrac{1}{2}\right) = 5\ V\ RMS$$

$$\frac{\mathcal{E}_p}{\mathcal{E}_s} = \frac{N_p}{N_s} = \frac{1}{2} \quad \underline{But}$$

$$\mathcal{E}_s = 0$$

$+\hat{\varepsilon}$



$$\Sigma \vec{B}_i \cdot \Delta \vec{s}_i = \mu_0 I_C$$

$$BW = \mu_0 I (nW)$$

$$B = \mu_0 I n$$

$$\Phi_{M,1} = BA \qquad \Phi_M = NBA$$

$$\Phi_M = \mu_0 I n^2 (AR)$$

$$L = \frac{\Phi_M}{I} = \mu_0 n^2 (AR)$$

$$L = \frac{\Phi_M}{I} = \mu_0 n^2 (AR)$$

$$U_M = \frac{1}{2} L I^2$$

$$u_m = \frac{B^2}{2\mu_0} \qquad U_M = \frac{B^2}{2\mu_0}(AR)$$

$I = 20A \quad A = .2\,m^2 \quad R = 1\,m$

$\mu_0 = 4\pi \times 10^{-7} \qquad n = 1000$

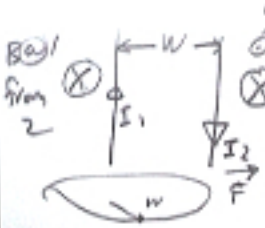
$$B = (4\pi \times 10^{-7}) \cdot 20 \cdot 1000$$

$$8\pi \times 10^{-3} T$$

$$U_M = \frac{(8\pi \times 10^{-3})^2}{2 \times 4\pi \times 10^{-7}} (.2)(1)\,J$$

$$L = (4\pi \times 10^{-7})(1000)^2 (.2 \times 1)\,H$$

$$\Phi_M = 1000 \times 8\pi \times 10^{-3} (.2)\,Tm^2$$



$$\sum \vec{B}_i \cdot \delta \vec{S}_i = \mu_0 I_C$$

$$B(2\pi W) = \mu_0 I_1$$

$$B = \frac{\mu_0 I_1}{2\pi W}$$

$$\vec{F} = I_2 \vec{l}_2 \times \vec{B} \quad |\vec{F}| = I_2 l_2 B$$

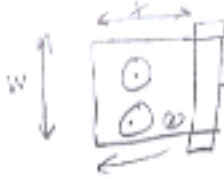
$$F = \frac{\mu_0 I_1 I_2 l_2}{2\pi W}$$

$$B = \frac{(4\pi \times 10^{-7})(3)}{2 \cdot \pi \cdot 1} = 6 \times 10^{-7}\ T$$

$$F = 3 \cdot 3 \cdot 6 \times 10^{-7} = 54 \times 10^{-7}\ N$$

$F = 3 \cdot 3 \cdot 6 \times 10^{-7} \approx 54 \times 10^{-7} N$

$x = x_0 + pt$



correction

$x = x_0 + pt$

(A)

$\Phi_m = BW(x_0 + pt)$

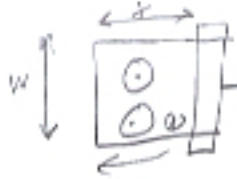
$\mathcal{E} = -\frac{\Delta \Phi_m}{\Delta t} = -BVW$ φ_p

$|\mathcal{E}| = Bpw$

$p = 2\,m/s$
$B = 1\,T$
$w = 1\,m$
$x_0 = 1000$
$t = 2s$

$\Phi_m = 1 \cdot 1 \cdot (1000 + 4)$
$= 1004\,Tm^2$

$|\mathcal{E}| = 1 \cdot 2 \cdot 1 = 2V$



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$= 1004\,Tm^2$

$|\mathcal{E}| = 1 \cdot 2 \cdot 1 = 2V$