1) $\sum mf = N \frac{\Delta \overline{z}}{\Delta t}$ Singly Loop: $N = 1$ $\overline{z} = BA \cos \overline{z}$ $A = \pi r^{2}$ $\theta = 0^{\circ} (\overline{B} \perp Loop)$ $\overline{z}mf = \frac{\Delta \overline{z}}{\Delta t} = \pi r^{2} \Delta B$ $\Delta \overline{t}$ $z) I = \overline{z}mf$ \overline{R} $zmf = N \Delta \overline{z} = NA \frac{\Delta B}{\Delta t} \cos^{\pi} \frac{1}{2}$ $\overline{z}mf = N \frac{\Delta \overline{z}}{At} = NB \frac{\Delta B}{\Delta t}$ $\overline{z} = Nab \frac{\Delta B}{\Delta t}$ $\overline{z} = \pi r^{2} - (\frac{\pi}{2})^{2} r^{2}$ $= \pi r^{2} (1 - \frac{\pi}{4})$ $\overline{z} = \pi r^{2} - (\pi - \frac{\pi}{4})^{2} r^{2}$ $\overline{z} = \pi r^{2} (1 - \frac{\pi}{4})$	HW#10 Solutions
Single Loop: $N = 1$ $\overline{\Psi} = BA \cos \theta$ $A = \pi \Gamma^{2}$ $\theta = 0^{\circ} (\overline{B} \perp Loop)$ $\overline{\Sigma} = \frac{A\overline{\Psi}}{A\overline{L}} = \pi \Gamma^{2} \underline{AB}$ $\overline{\Delta L}$ $Z) I = \overline{\Sigma} = \frac{E}{R} f$ \overline{R} $\Xi = N \underline{A} \underline{\Phi} = NA \underline{AB} \cos^{-1} \underline{AB}$ $\overline{\Delta L} = N \underline{AB} \underline{AB} \cos^{-1} \underline{AB}$ $\overline{\Delta L} = N \underline{AB} \underline{AB} - \frac{AB}{\Delta L}$ $\overline{\Delta L} = N \underline{AB} \underline{AB} - \frac{AB}{\Delta L}$ $\overline{\Delta L} = NB \underline{AA} \cos^{-1} P_{\text{Fixed}}^{\text{Fixed}} - \frac{AB}{\overline{AL}} = NB \underline{AA} \cos^{-1} P_{\text{Fixed}}^{\text{Fixed}} - \frac{AB}{\overline{AL}} = \frac{IR}{Nab}$ $\overline{AA} = \pi \Gamma^{2} - (\frac{\pi}{2})^{2} \Gamma^{2} - \frac{\pi}{2} - \frac{\pi}{2} \Gamma^{2}$ $= \pi \Gamma^{2} (1 - \frac{\pi}{4})$	1) $\sum m f = N \frac{\Delta \Phi}{\Delta t}$
$\overline{E} = BA \cos \theta$ $A = \pi r^{2}$ $\theta = 0^{\circ} (\overline{B} \perp Loop)$ $\overline{E}mf = \frac{\Delta \overline{E}}{\Delta t} = \pi r^{2} \Delta B$ $\overline{\Delta t}$ $z) \overline{I} = \frac{\epsilon mf}{R}$ $\epsilon mf = N \Delta \overline{E} = NA \frac{\Delta B}{\Delta t} \cos^{\theta} \frac{1}{b}$ $\epsilon mf = N \Delta \overline{E} = IR \frac{\Delta B}{\Delta t}$ $-b \frac{\Delta B}{\Delta t} = IR \frac{\Delta B}{\Delta t}$ $a = \pi r^{2} - (\frac{\pi}{2})^{2} r^{2}$ $= \pi r^{2} (1 - \frac{\pi}{4})$ $\overline{E} = \frac{\pi r^{2}}{2} r^{2}$ $C = \pi r^{2} - \frac{\pi}{2} r^{2}$ $C = \pi r^{2} - \frac{\pi}{2} r^{2}$	SINGLE LOOP : N=1
$A = \pi r^{2}$ $\Theta = O^{\circ} \left(\vec{B} \perp \text{ Loop} \right)$ $\sum m f = \frac{\Delta \vec{E}}{\Delta t} = \pi r^{2} \Delta \vec{B}$ Δt $Z) I = \sum m f$ R $\sum m f = N \Delta \vec{E} = NA \frac{\Delta B}{\Delta t} \cos^{2} \frac{1}{D}$ $\sum m f = N \Delta \vec{E} = NA \frac{\Delta B}{\Delta t} \cos^{2} \frac{1}{D}$ $\sum M ab \frac{\Delta B}{\Delta t}$ $\Rightarrow \frac{\Delta \vec{E}}{\Delta t} = IR$ $\Delta \vec{E} = IR$ $\Delta \vec{E} = IR$ $\Delta \vec{E} = NB \Delta \vec{A} \cos^{2} \frac{1}{Printiple}$ $\Delta A = \pi r^{2} - \left(\frac{\pi}{2}\right)^{2} r^{2}$ $= \pi r^{2} \left(1 - \frac{\pi}{4}\right)$ $\Rightarrow a = \frac{\pi}{2} r$	$\overline{\Phi} = BA \cos \theta$
$\Theta = O' \left(\vec{B} \perp loop \right)$ $\Sigma m f = \frac{\Delta \vec{x}}{\Delta t} = \pi r^{2} \Delta B$ Δt $Z) I = \Sigma m f$ R $\Sigma m f = N \Delta \vec{x} = NA \frac{\Delta B}{\Delta t} \cos^{3} \frac{1}{D}$ $\Sigma m f = N \Delta \vec{x} = NA \frac{\Delta B}{\Delta t} \cos^{3} \frac{1}{D}$ $= Nab \frac{\Delta B}{\Delta t}$ $\Rightarrow \frac{\Delta B}{\Delta t} = IR$ $AB = IR$ $\Delta A = \pi r^{2} - (\frac{\pi}{2})^{2} r^{2}$ $= \pi r^{2} (1 - \frac{\pi}{4})$ $= N ab \frac{\Delta A}{\Delta t} \cos^{3} \frac{1}{D} \frac{P_{zeiASTER}}{P_{zeiASTER}}$ $A = \pi r^{2} - (\frac{\pi}{4})^{2} r^{2}$ $\Rightarrow \alpha = \frac{\pi}{2} r$	$A = \pi r^2$
$\sum_{n=1}^{\infty} \sum_{i=1}^{n} \sum_{\substack{i=1\\ n \neq i}}^{n} \sum_{\substack{i=1\\ n \neq i}}^$	$\Theta = O^{\circ} \left(\vec{B} \perp L \circ \rho \right)$
R $Emf = N \Delta \overline{\Xi} = NA \frac{\Delta B}{\Delta t} \cos^{1} \frac{1}{D}$ $Emf = N \Delta \overline{\Xi} = NA \frac{\Delta B}{\Delta t}$ $= Nab \frac{\Delta B}{\Delta t}$ $\longrightarrow \frac{\Delta B}{\Delta t} = IR$ $\frac{\Delta B}{\Delta t} = IR$ $\frac{\Delta B}{\Delta t} = NB \frac{\Delta A}{\Delta t} \cos^{2} \frac{1}{FixLD}$ $AA = \pi \Gamma^{2} - (\frac{\pi}{2})^{2} \Gamma^{2}$ $= \pi \Gamma^{2} (1 - \frac{\pi}{4})$ $Ha = 2\pi \Gamma$ $\Rightarrow a = \frac{\pi}{2} \Gamma$	$\vec{z} = \frac{\Delta \vec{z}}{\Delta t} = \pi r^2 \Delta B$ $\vec{z} = \vec{z} = \vec{z} = \vec{z} = \vec{z}$
$\sum m f = N \Delta \overline{\Xi} = NA \Delta \overline{B} \cos \theta$ Δt $= Nab \Delta \overline{B}$ $\rightarrow \Delta \overline{B} = \overline{IR}$ $\overline{\Delta t} = \overline{Nab}$ $3) \sum mF = N \Delta \overline{\Xi} = NB \Delta A \cos \theta^{2} \frac{1}{FixED}$ $\Delta t = T\Gamma^{2} - (\frac{\pi}{2})^{2}\Gamma^{2}$ $= \pi\Gamma^{2} (1 - \frac{\pi}{4})$ $FixED = \frac{\pi}{2}\Gamma^{2}$	R $\frac{2}{1b}$
	$\Sigma m f = N \Delta \overline{\Phi} = N A \frac{\Delta B}{\Delta t} \cos \theta$ = N ab $\frac{\Delta B}{\Delta t}$
3) $\Sigma MF = N \Delta \overline{\Phi} = N B \Delta A \cos^{2} \frac{1}{Fix2D}$ $\Delta A = \pi \Gamma^{2} - (\frac{\pi}{2})^{2} \Gamma^{2}$ $= \pi \Gamma^{2} (1 - \frac{\pi}{4})$ $AA = \pi \Gamma \frac{1}{2} \Gamma^{2}$ $AA = \pi \Gamma^{2} - (\frac{\pi}{2})^{2} \Gamma^{2}$	$\rightarrow \Delta B = IR$ $\Delta t = Nab$
$\Delta A = \pi \Gamma^{2} - \left(\frac{\pi}{2}\right)^{2} \Gamma^{2}$ $= \pi \Gamma^{2} \left(1 - \frac{\pi}{4}\right)$ $\Rightarrow \alpha = \frac{\pi}{2} \Gamma$	3) $\Sigma MF = N \Delta \overline{\Xi} = N B \Delta A \cos^{2} F_{ixiD}$ $\Delta t \qquad A = \frac{1}{\Delta t} \cos^{2} \frac{1}{\Delta t} = \frac{1}{\Delta t} = \frac{1}{\Delta t} \cos^{2} \frac{1}{\Delta t} = $
$=\pi\Gamma^{\prime}\left(1-\frac{\pi}{4}\right) \qquad \qquad$	$\Delta A = \pi \Gamma^2 - \left(\frac{\pi}{2}\right)^2 \Gamma^2$
	$=\pi\Gamma^{2}\left(1-\frac{\pi}{4}\right) \qquad \qquad \forall \alpha = 2\pi\Gamma$ $\rightarrow \alpha = \frac{\pi}{2}\Gamma$

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4) ALL THREE AFFECT EMF
$\Sigma m \int = N \frac{\Delta \Phi}{\Delta \Phi} = 1$
$\Delta t = (\underline{\pi})$
$e \setminus e \setminus f$
S) NO FORCE! NO CURRENT IN RING
SINCE CHERSN'T IN COUL IS CONSTANT
6) FROM RHR #2, B INCREASING
· · · · · · · · · · · · · · · · · · ·
DUT OF THE PAGE
$\mathbf{S}_{\mathbf{a}} = \mathbf{S}_{\mathbf{a}} = $
· · · · · · · · · · · · · · · · · · ·
CHERS NT THOUGS WHICH (FENERATES B
CELO WHICH OPPOSSE THIS INCREASE
· THIS CURRENT I RUNS [EFT -> RIGHT
THRU R.
$7) - \overline{\mathbf{w}} - \overline{\mathbf{s}}$
$B_{Z} \land D_{I} \: D_{I} \land D_{I} \: $
LEFT-WARDS FLUX INCREASING AS MAGNET
NOUCED INDUCED
Which GENERATES FIELD B, WHICH OPPOSES
THS INCREASE IN SET (DADRE CHANNEL

8) 522 7) DOWN-WARDS FLUX INCREASING. 9) 0 0 1 WHICH GENERATES B2 8 INDUCED INCREASE IN DOWN-WARDS WHICH opposes FMX REMOVED (0) TO EARLIER PROBLEM. DENTICAL 5 11) ^{\$}/ FLUX INCREMING 00 NOARDS) = Cc.c.w (FROM Top) DODN WARDS FLUX 12) $\Sigma m f = 2\pi f N B A$ s v DECREASING $=2\pi f NBa^2$ a f FREQUENCY of Rotation (REJOLUTIONS UNIT TIME $13) \Sigma m f = N \frac{\Delta \Phi}{\Delta t} = N B A \frac{\Delta \cos \Phi}{\Delta t}$ ⊖ 0 → 10° cos D° - cos 90° = 1-0 = 6 Cos 8 = Emf At = Emf At B $N\pi\left(\frac{d}{2}\right)^2$ NA A

14) $\Sigma m f = 2\pi f N B A$
$ 5\rangle = \frac{\varepsilon - t}{\varepsilon - t}$
$()^{RA} = 2\pi (NB\pi r^2)$
$16) zmf = 2\pi f m SH zn + v =$
$ 7\rangle V_{2} = \frac{N_{2}}{N_{1}} V_{1} \qquad 8\rangle$
$ 9) SEE 7) Zo) \frac{N_{i}}{N_{i}} = \frac{V_{i}}{V_{i}}$
$\left(\left(1 \right) \right) = \left(1 \right) $
(V_1, N_1) primary, (V_2, N_2) secondary