① 2 coils w/ $M = 3.25 \times 10^{-4}$ [H]

$$\frac{dI_1}{dt} = 880 \text{ [A/s]}$$

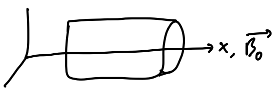
a) $$|\mathcal{E}_2| = M \frac{dI_1}{dt}$$

$$\Rightarrow |\mathcal{E}_2| = \boxed{3.25 \times 10^{-4} \times 880 \text{ [V]}}$$

b) sps. $\frac{dI_2}{dt} = 880$ [A/s]

$$|\mathcal{E}_1| = M \frac{dI_2}{dt} = \boxed{3.25 \times 10^{-4} \times 880 \text{ [V]}}$$

② $T \sim 0$ [K] $B_c \to 0.142$ [T]   Vanadium ($T > T_c$) : $\chi_m \sim 0$



Note:

$$\vec{B}_{in} = \mu_0 \vec{M} \Rightarrow \vec{M} = \frac{\vec{B}_{in}}{\mu_0}$$

Find $\vec{B}_{res}$ and $\vec{M}_{res}$ inside & outside for:

a) $\vec{B_0} = (0.13)\hat{i}$ [T]

$\vec{B_0} < \vec{B_c} \Rightarrow$ Superconducting

$\boxed{\vec{B}_{in} = -0.13\hat{i} \text{ [T]}}$ $\boxed{\vec{B}_{out} = 0}$

$\boxed{\vec{M} = -\frac{.13}{\mu_0}\hat{i}}$

b) $\vec{B_0} = 0.26\ \hat{i}$ [T]

$\boxed{\vec{B}_{in} = 0 \text{ [T]}}$ $\boxed{\vec{B}_{out} = .26\hat{i} \text{ [T]}}$

$\boxed{\vec{M} = 0}$