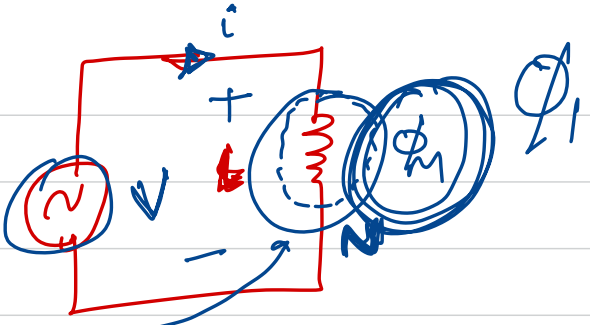
$$V = L \frac{di}{dt}$$

self- inductance



$$V_1 = \frac{N\{d\phi\}}{\{dt\}}$$

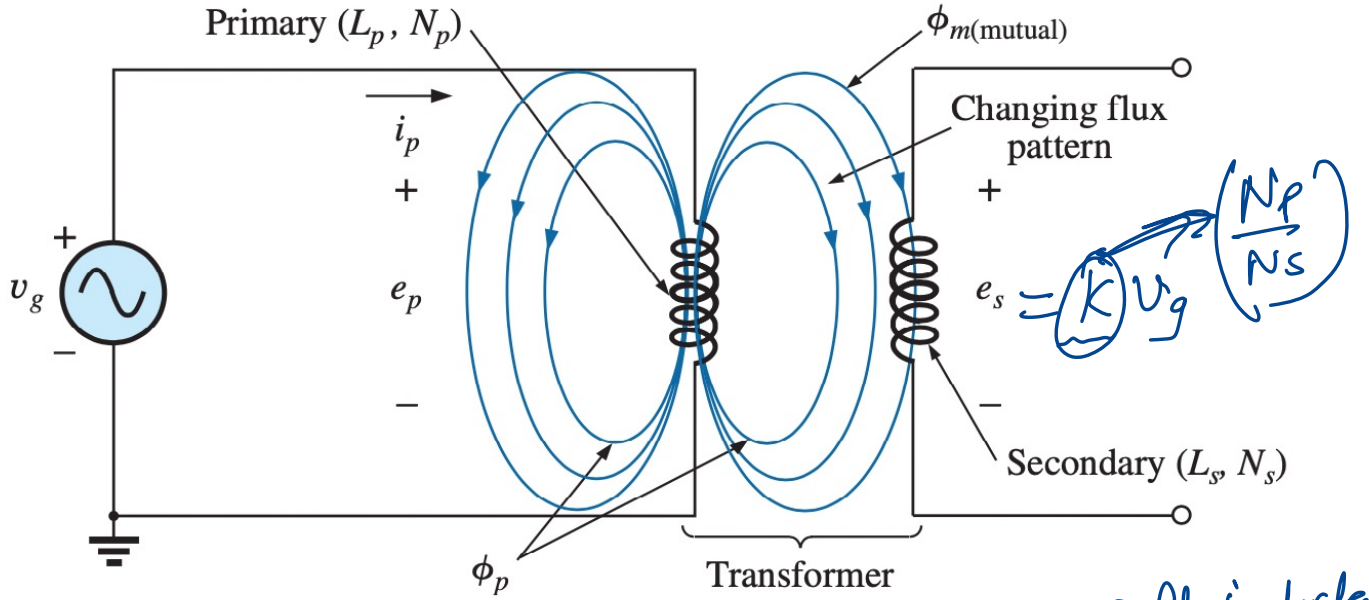
$$= \frac{N\, d\phi}{di} \cdot \frac{di}{dt}$$

$$\phi_1 = (+) + (-)$$

first

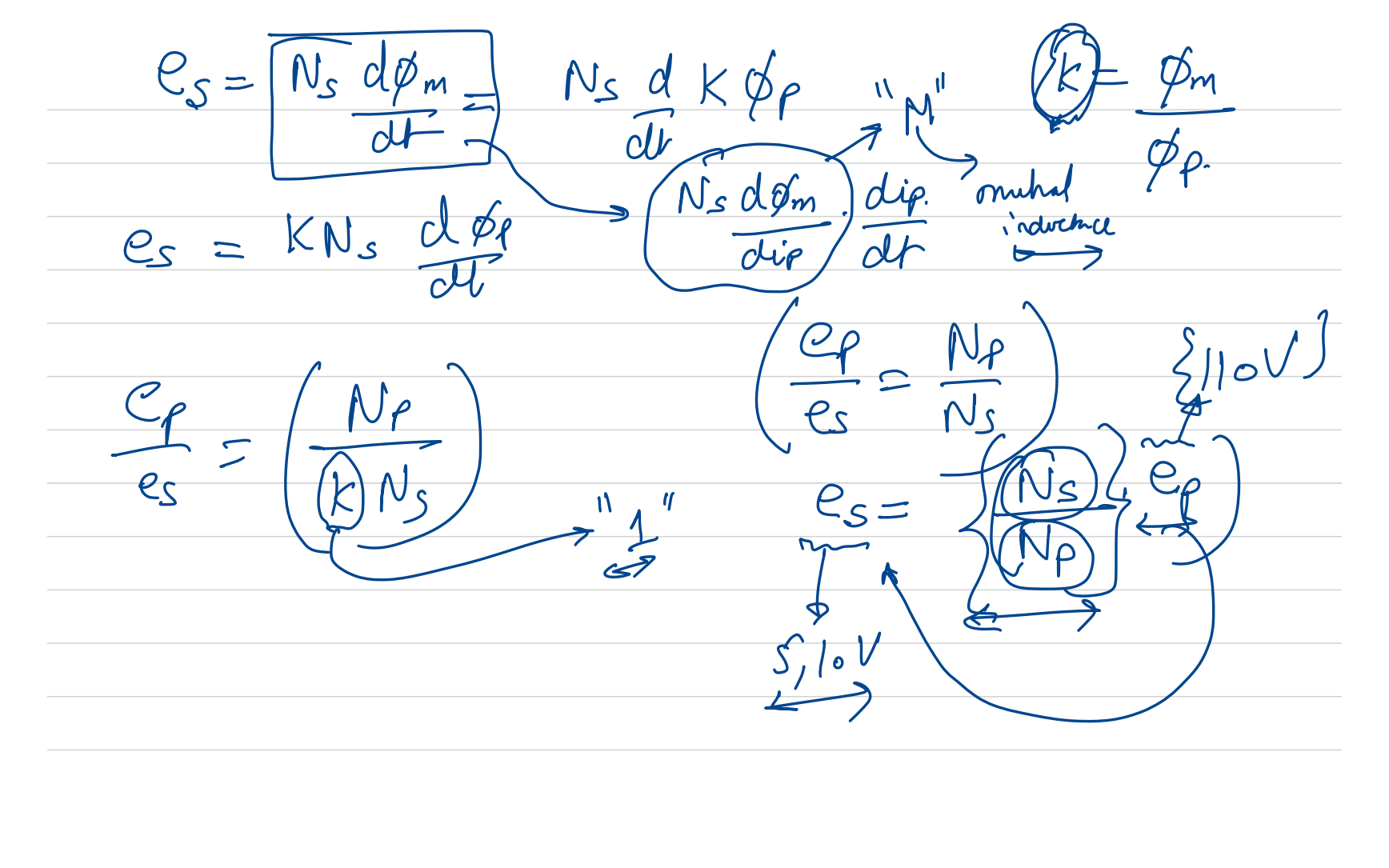
first & feed induct

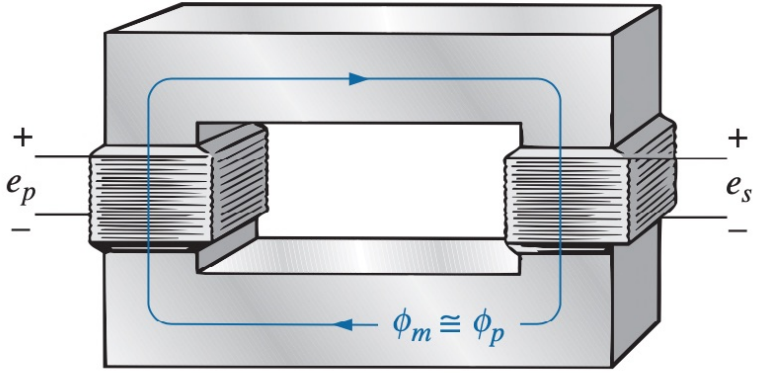
$$= L$$



$$e_p = N_p \frac{d\phi_p}{dt} = N_p \frac{d\phi_p}{di_p} \cdot \frac{di_p}{dt} = L \frac{di_p}{dt}$$

self inductance

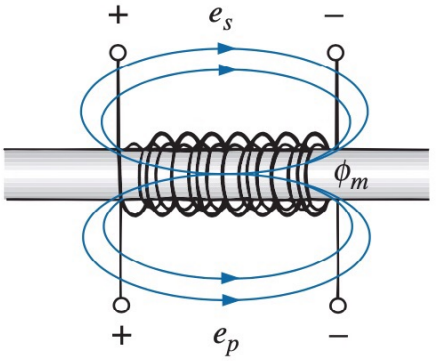

$e_s = N_s \frac{d\phi_m}{dt}$
$N_s \frac{d}{dt} K \phi_p$
"M"
$k = \frac{\phi_m}{\phi_p}$
$N_s \frac{d\phi_m}{di_p} \cdot \frac{di_p}{dt}$
mutual inductance
$e_s = K N_s \frac{d\phi_p}{dt}$
$\frac{e_p}{e_s} = \frac{N_p}{k N_s}$
"1"
$\frac{e_p}{e_s} = \frac{N_p}{N_s}$
{110V}
$e_s =$
N_s
N_p
e_p
5,10V



Steel core

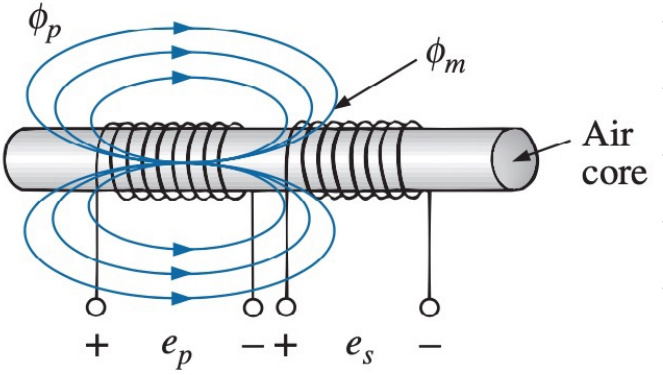
$K = 1 = \dfrac{\phi_m}{\phi_p}$

$K \leq 1$



Any core

$K = 1$




L_1
L_2

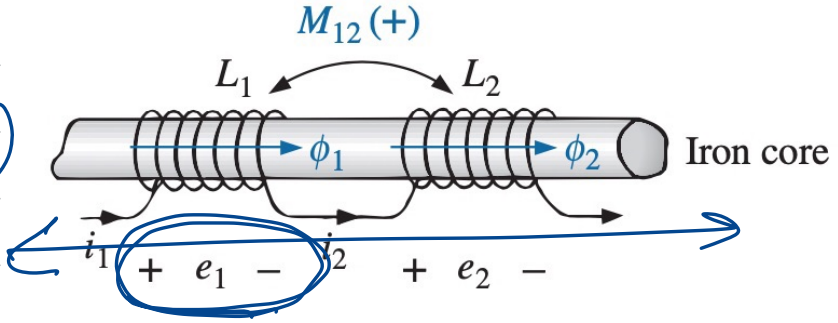
$e = e_1 + e_2$

$e = (L_1 + L_2 + 2M_{12}) \frac{di}{dt}$

$(L_1 + L_2 + 2M_{12})$

Aiding

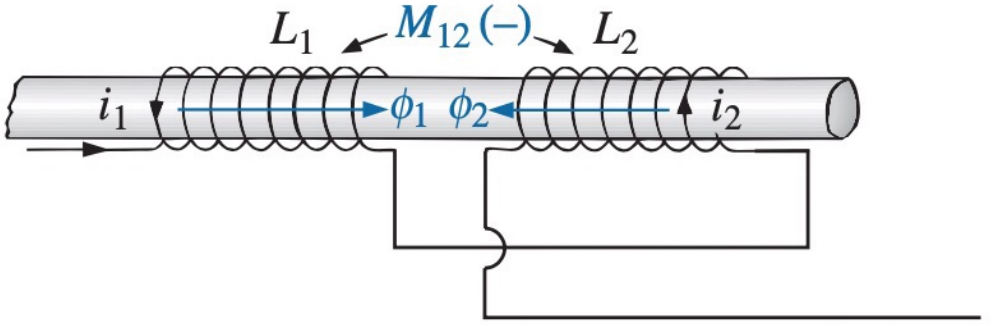
$(M_{12} = M_{21})$



$i_1 = i_2$

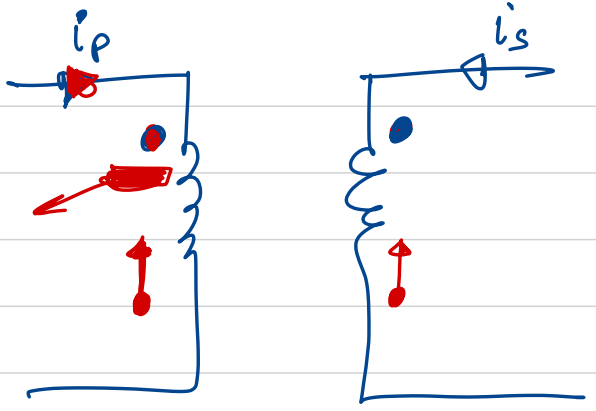
$e_1 = L_1 \frac{di_1}{dt} + M_{12} \frac{di_2}{dt} = L \frac{di_1}{dt} + M_{12} \frac{di_1}{dt}$

$e_2 = L_2 \frac{di_2}{dt} + M_{12} \frac{di_1}{dt} = L_2 \frac{di_1}{dt} + M_{12} \frac{di_1}{dt}$

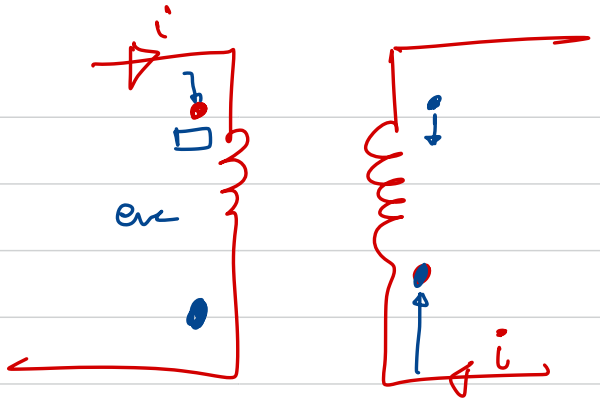


$L_{eq} = "L_1 + L_2 - 2M"$

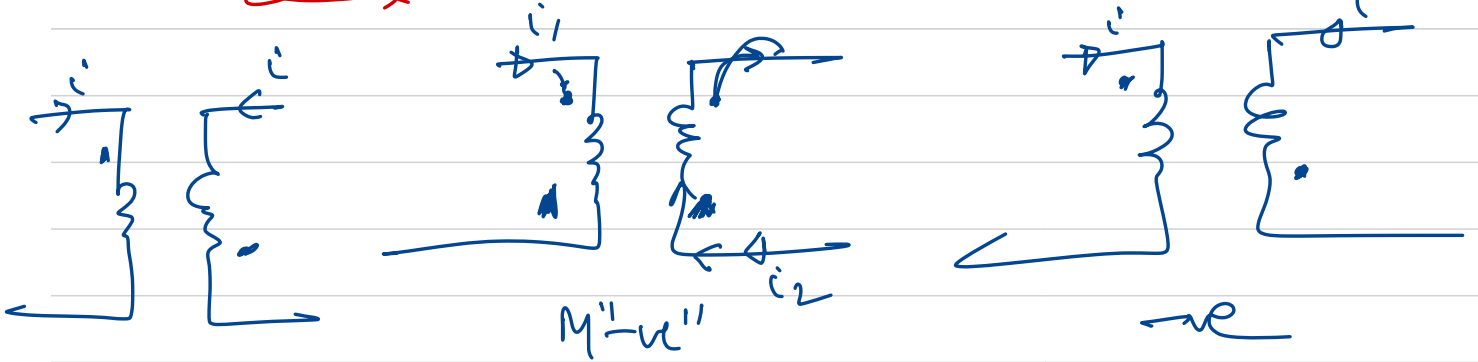
"dot"



"M +ve"

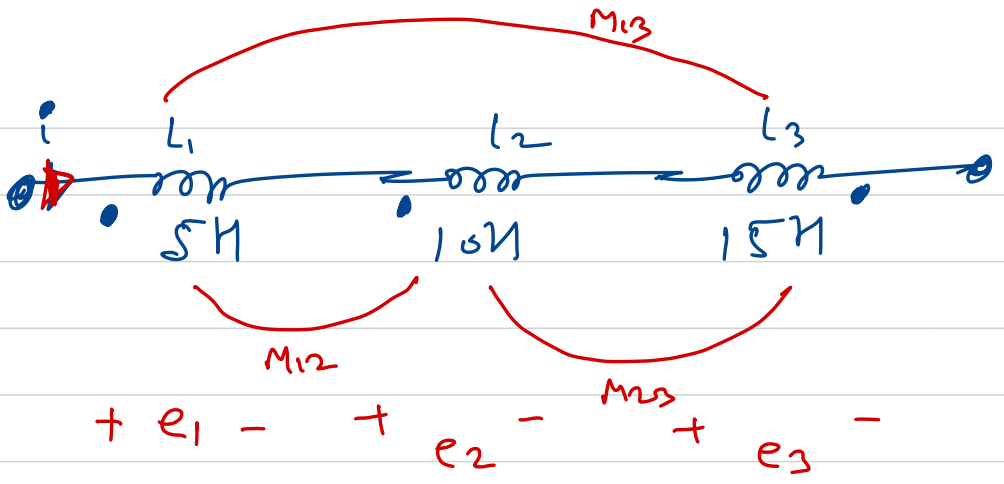


"M" "+ve"



"M" "-ve"

"-ve"

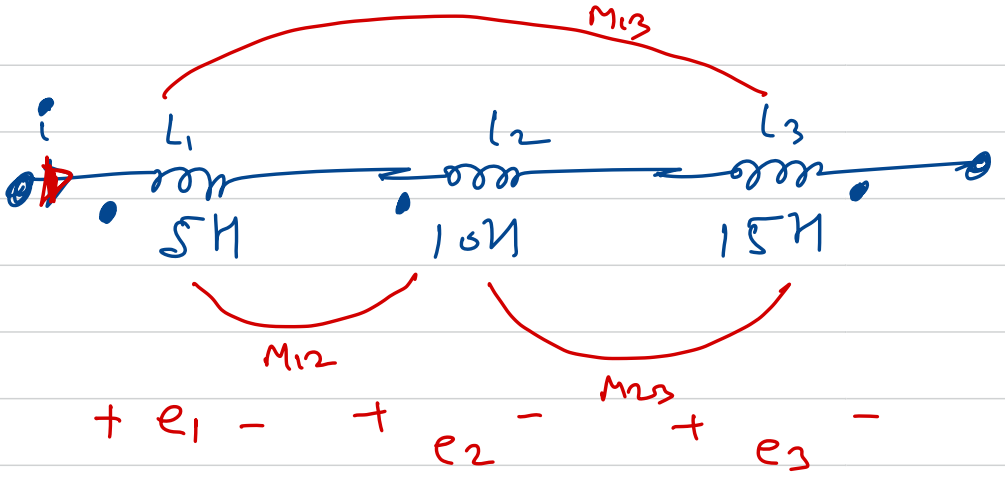


$e = "e_1 + e_2 + e_3"$

"264"

$M_{12} = 2 \qquad M_{23} = 3 \qquad M_{13} = 1H.$

$$e_1 = \left[L_1 \frac{di_1}{dt} + M_{12} \frac{di_1}{dt} - M_{13} \frac{di_1}{dt} \right]$$



$$e_2 = L_2 \frac{di_1}{dt} + M_{12} \frac{di_1}{dt} - M_{23} \frac{di_1}{dt}$$

$$e_3 = L_3 \frac{di_1}{dt} - M_{13} \frac{di_1}{dt} - M_{23} \frac{di_1}{dt}$$

$e_1 + e_2 + e_3 =$  $\frac{di}{dt}$

$= L_1 + L_2 + L_3 + 2M_{12} - 2M_{23} - 2M_{13}$

$L_{eq} = 2H$