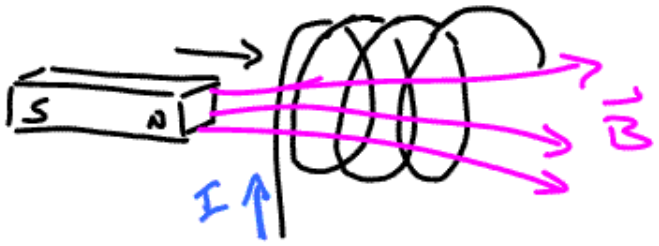
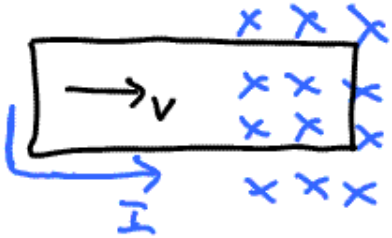
Solutions to Physics 114 P.S.

① 29-2



magnet being inserted
B field strength increasing
I induced in direction to decrease the increasing field ... goes in direction shown to produce $\vec{B}$ thru loop from Right to left.

② 29-3



loop being pushed into field means B flux into board increasing.
Induce current counter-clockwise to "fight" this increase.

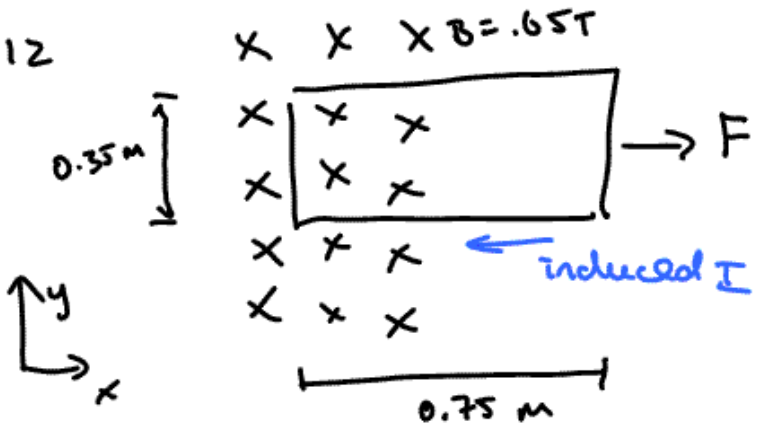
(3) 29-8

R slowly increased, V unchanged → i slowly decreasing

B coming out but flux decreasing
I in smaller loop counter-clockwise to fight the decreasing field.

Outside big loop $\vec{B}$ going in but decreasing
so induced I is clockwise to fight the decrease.

④ 29-12



$R = 0.28\ \Omega$

$v = 3.4\ m/s$

$$|\mathcal{E}| = \frac{d\Phi_m}{dt} = \frac{d}{dt} B(xy) = B_y \frac{dx}{dt} = (.65)(.35)\,3.4$$

$|\mathcal{E}| = 0.77$ volts

$|\mathcal{E}| = IR \qquad .77 = I\ .28$

$I = 2.75$ Amps

Force (to pull loop out at constant v) $= ILB$ (.35)

$F = (2.75)(.35)(0.65) = 0.63\ N$