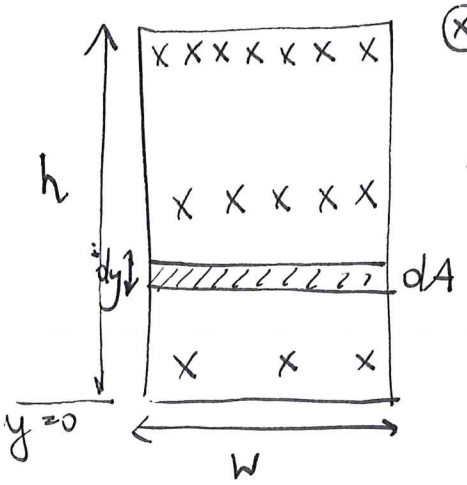

$\otimes \vec{B}$ direction

$\uparrow$ B strength

$B = B_0 + Cy$

$\uparrow$

at the base C – constant

$$\Phi_B = \int \vec{B} \circ d\vec{A} = \int_{y=0}^{h} (B_0 + Cy) \cdot w\, dy$$

$$\Phi_B = \int_{y=0}^{h} B_0 w\, dy + \int_{y=0}^{h} Cy\, w\, dy = B_0 w \int_{y=0}^{h} dy + Cw \int_{y=0}^{h} y\, dy$$

$$\Phi_B = B_0 w [y]_0^h + Cw \cdot \frac{1}{2} [y^2]_0^h$$

$$\Phi_B = B_0 w h + \frac{1}{2} C w h^2$$

If we moved it to the right or left

B – constant, A – constant, – constant

$\Rightarrow$ no $\mathcal{E}$, no i

up $\Phi_B \uparrow$ CCW current to produce $\vec{B}$ ⊙ (opposing)

down $\Phi_B \downarrow$ CC current to produce $\vec{B}$ ⊗ opposing