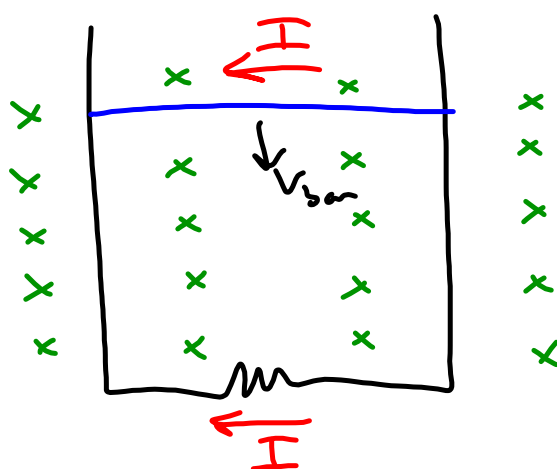


$$\begin{aligned}
 \vec{B} \cdot d\vec{A} &= B dA \cos \theta \rightarrow 1 \\
 &= B d(lw) \\
 &= B l dw \quad \frac{dw}{dt} = v
 \end{aligned}$$



Net force



Differential Equation:

Equation containing both derivative terms and other terms that are part of the derivative

$$\frac{dy}{dx} = 3x + y$$

Asked for velocity \rightarrow use an acceleration term $(\frac{dv}{dt})$

$$\sum F = ma$$

$$Mg - \frac{B^2 l^2}{R} v = M \frac{dv}{dt}$$

$$\frac{dv}{dt} = g - \frac{B^2 l^2}{MR} v$$

$$\int \frac{dv}{g - \frac{B^2 l^2}{MR} v} = \int dt$$