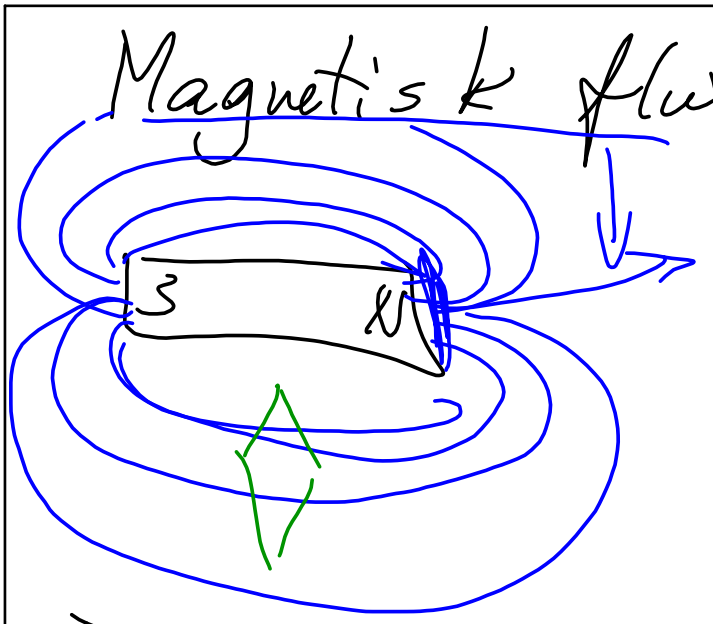
Magnetisk fluks



Φ

[Wb]

↑

Weber

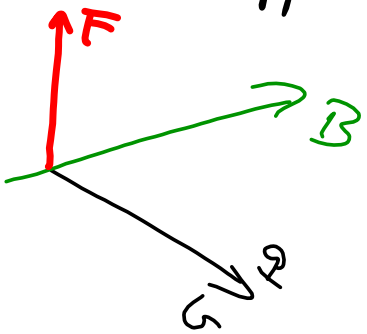
Fluxtetthet

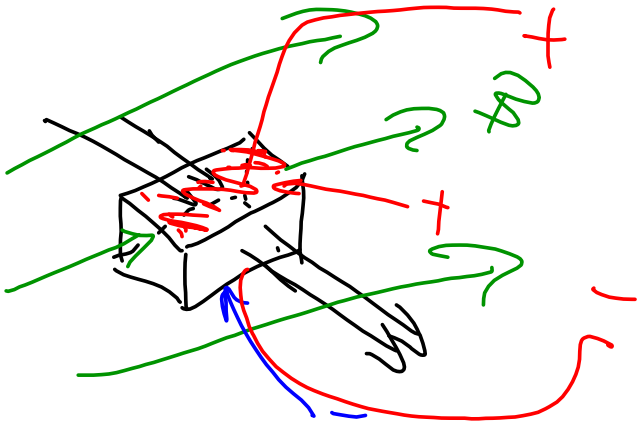
$B = \frac{\Phi}{A}$

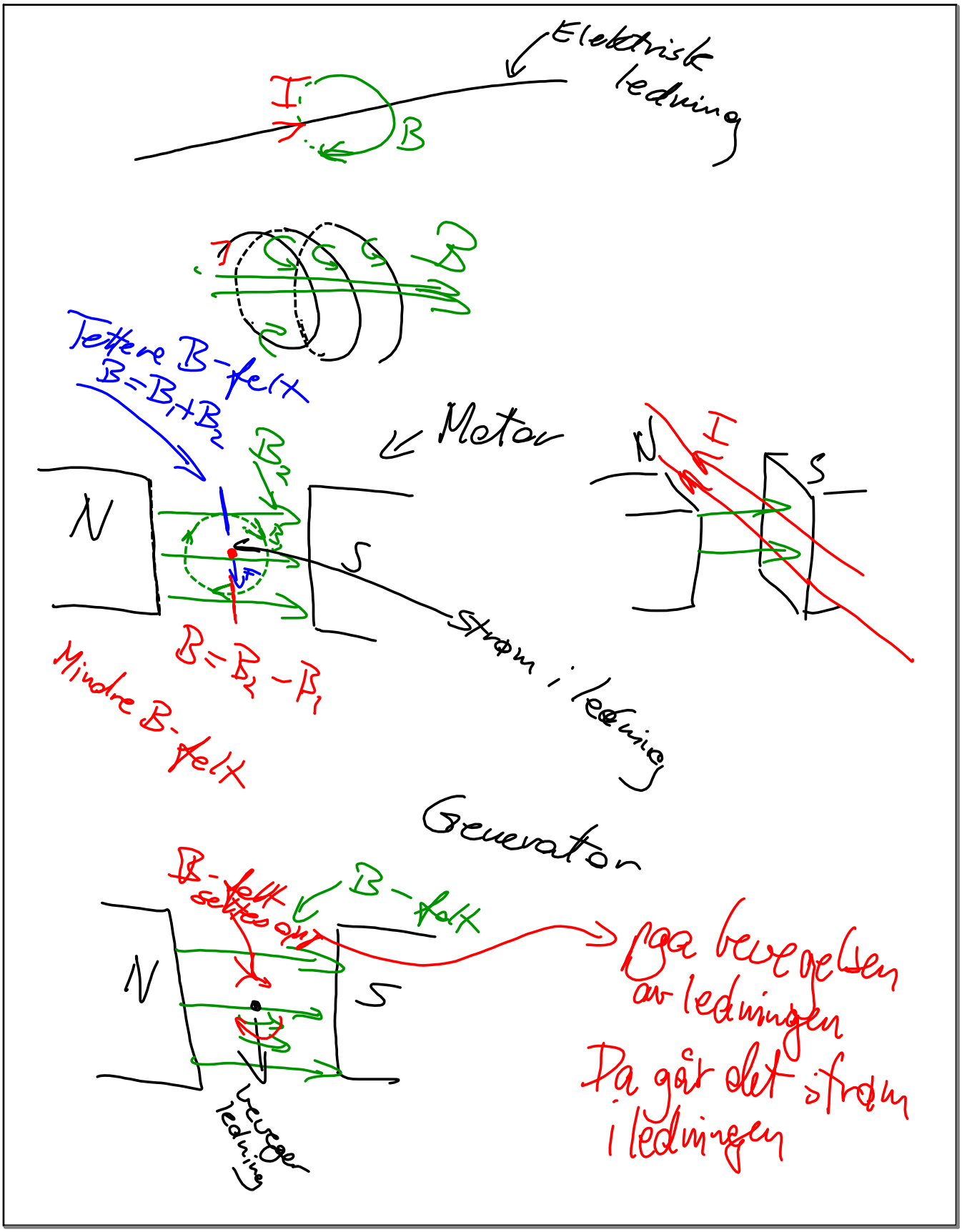
$\left[\frac{Wb}{m^2}\right] \Rightarrow [T]$

Sensor for å måle B-felt:

Hall-effekt sensor






Elektrisk ledning
I
B
Tettere B-felt
B = B1 + B2
Motor
N
S
Strøm i ledning
B = B2 - B1
Mindre B-felt
N
I
S
Generator
B-felt
B-felt settes ut
N
S
Leder ledning
Da beveger ledningen
Da går det strøm i ledningen

Magnetisk motstand

Reluktans $\mathcal{R}$

Benevnelse R_m

$$\left[\frac{At}{Wb}\right]$$

At ← Ampere turn (viklinger)

Wb ← Weber

Permeabilitet μ $\left[\frac{Wb}{At \cdot m}\right]$

$$\mu = \mu_0 \cdot \mu_r$$

μ ← Den totale permeabiliteten

μ_0 ← Permeabilitet i luft: $4\pi \cdot 10^{-7}$

μ_r ← relativ permeabilitet

$$\mathcal{R} = \frac{l}{\mu \cdot A}$$

l ← lengden

A ← Areal

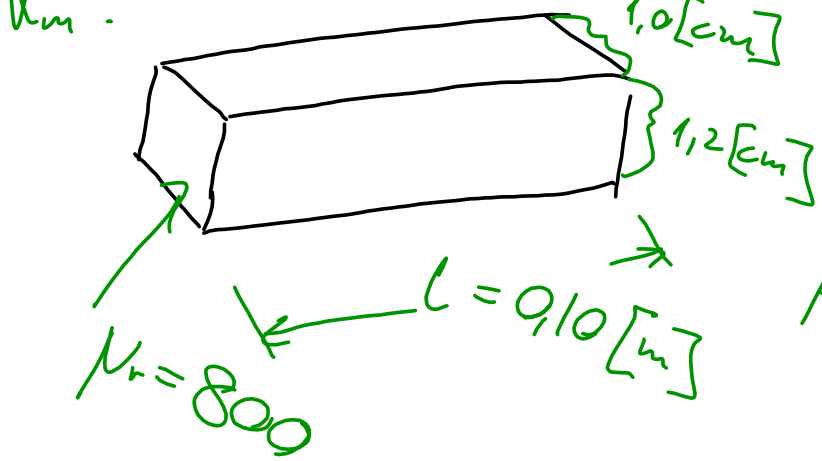
μ ← permeabiliteten

$$F_m = N \cdot I$$

Antall viklinger

strømstyrken

$$\Phi = \frac{F_m}{R}$$



$A = 1{,}0 \cdot 10^{-2} \cdot 1{,}2 \cdot 10^{-2}\ [m^2]$

$= 1{,}2 \cdot 10^{-4}\ [m^2]$

$$\mu = \mu_0 \cdot \mu_r = 4\pi \cdot 10^{-7}\left[\frac{Vs}{At \cdot m}\right] \cdot 800 = 1{,}0 \cdot 10^{-3}\left[\frac{Vs}{At \cdot m}\right]$$

$$R = \frac{l}{\mu \cdot A} = \frac{0{,}10\ [m]}{1{,}0 \cdot 10^{-3}\left[\frac{Vs}{At \cdot m}\right] \cdot 1{,}2 \cdot 10^{-4}\ [m^2]} = \quad \cdot 10^{2}$$