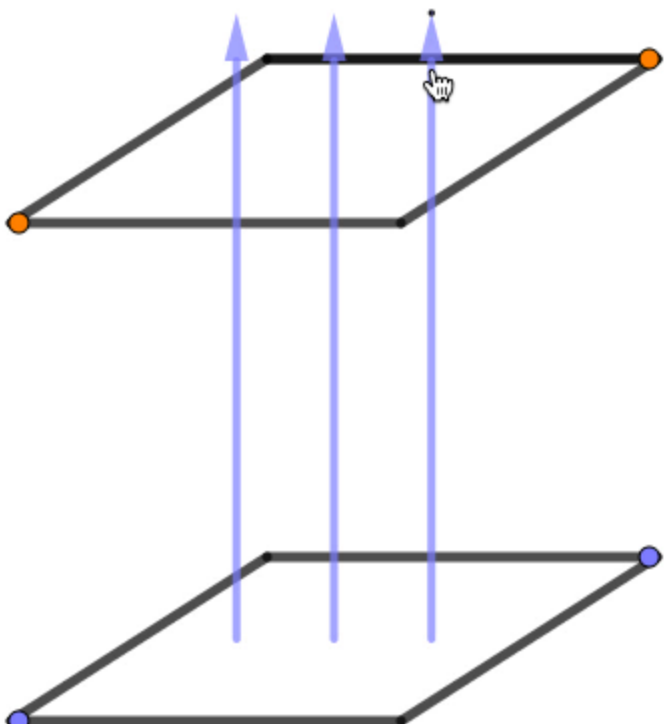
$$\vec{B}_{\hat{z}} = \frac{I}{R} \qquad \Phi_B = \int B \cdot ds \qquad \epsilon = -\dot{\Phi}_B \qquad I_D = \frac{\epsilon}{R}$$



$$M = \frac{\Phi_{1,2}}{I_{2,1}}$$

$$I \to I_D$$

$$F = LI \times B$$

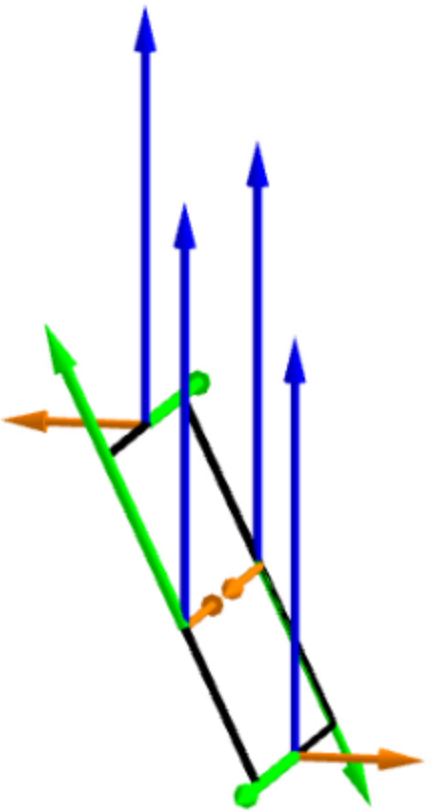
$$\tau = F \times R$$

$$\tau = LI \times B \times R$$

$$\tau = IB \times S$$

$$\vec{\mu} = IS\hat{n}$$

$$\vec{\tau} = \vec{\mu} \times \vec{B}$$



$$\vec{B}_{(z,R)}\hat{z} = I\,\frac{R^2}{(z^2+R^2)^{\frac{3}{2}}}\,\hat{z}$$

$$\Phi_B = \int B\cdot ds \qquad \epsilon = -\dot{\Phi}_B \qquad I_D = \frac{\epsilon}{R} \qquad M = \frac{\Phi_1}{I_2} = \frac{\Phi_2}{I_1}$$

1

$$\vec{B}_{2(z,R)}\hat{z} = I_{2(t)}\,\frac{d_2^2}{(h^2+d_2^2)^{\frac{3}{2}}}\,\hat{z}$$

$$\Phi_1 = B_2\cdot d_1^2$$

$$M = \frac{\Phi_1}{I_2} = \frac{\Phi_2}{I_1}$$

2

$$\epsilon_1 = -\dot{\Phi}_1 \qquad \epsilon_2 = -\dot{\Phi}_2$$

$$I_1 = \frac{\epsilon_1}{R_1} \qquad I_2 = \frac{\epsilon_2}{R_2}$$