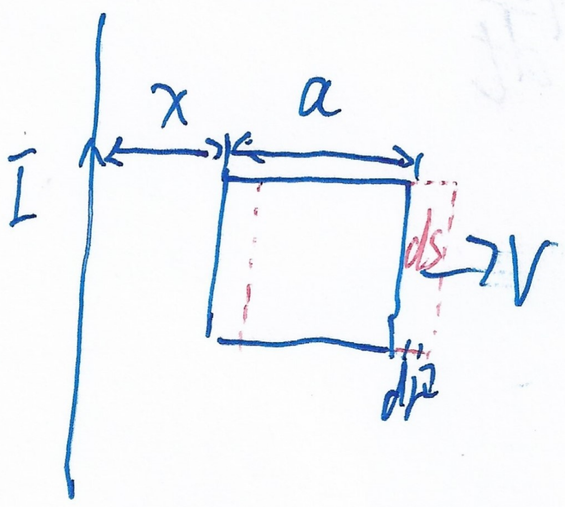
4. Дано: R_1, R_2, B, v, l

Найти: I в перемычке

$$\mathcal{E} = Bvl$$

$$I = \frac{\mathcal{E}}{R + \frac{R_1 + R_2}{R_1 R_2}} = \frac{Bvl}{R + \frac{R_1 R_2}{R_1 + R_2}}$$

5. Дано:



, Найти $\mathcal{E}(x)$

$$d\Phi = BdS = \frac{\mu_0 I}{2\pi r} a\,dr$$

$$\Phi = \frac{\mu_0 I a}{2\pi} \int_x^{x+a} \frac{dr}{r} = \frac{\mu_0 I a}{2\pi} \ln \frac{x+a}{x}$$

$$\mathcal{E} = -\frac{d\Phi}{dt} = -\frac{d\Phi}{dx} \cdot \frac{dx}{dt} = -\frac{\mu_0 I a}{2\pi} \left(\frac{1}{x+a} - \frac{1}{x}\right) \cdot v$$

$$= \frac{\mu_0 I a^2 v}{2\pi x(x+a)}$$