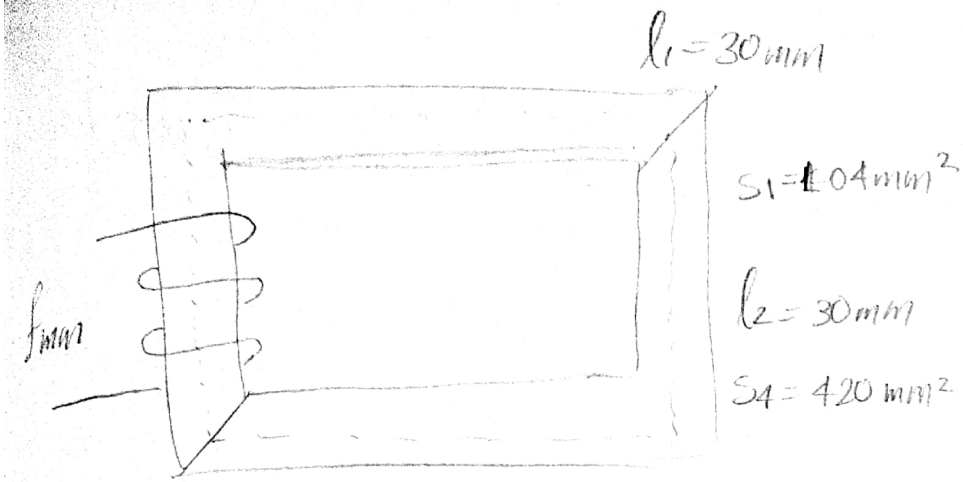
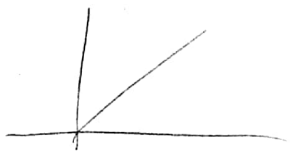


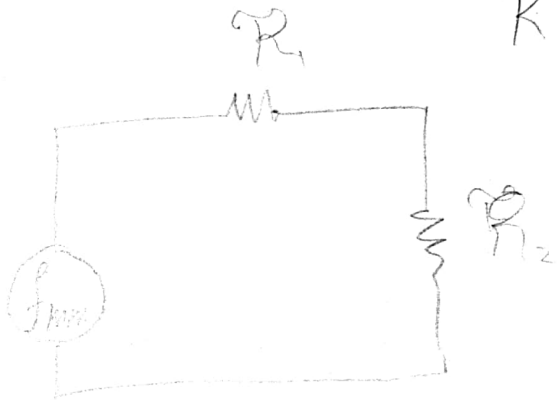
$$R = \frac{l}{\mu_0 \mu_r A}$$

$\mu_1 = 4000$

$\mu_r \propto B$



$\mu_0 = 12.56 \times 10^{-7}\ H/m$



$$f_{mm} = \phi R_T = \phi (R_1 + R_2)$$

$$\phi = \frac{4.0A}{95695 + 49761}$$

$$\boxed{\phi = 27.5\,\mu Wb}$$

$$R_1 = \frac{0.05}{(12.56\times10^{-7})(4000)(104\times10^{-4})} = 95694.5$$

$$R_1 = \frac{0.03}{(12.56\times10^{-7})(4000)(6.02\times10^{-4})} = 49761.1$$

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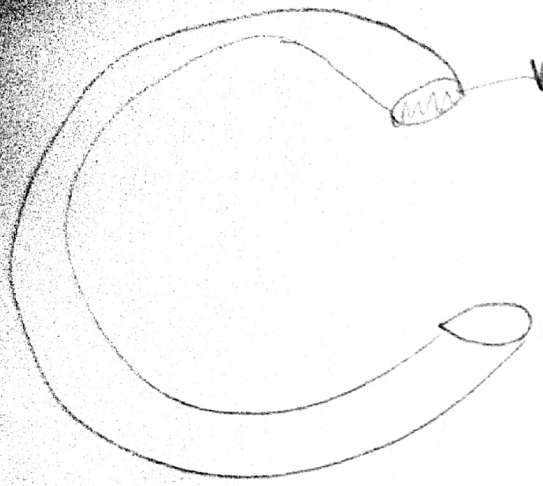


$r = 20\,mm$

$l = 280\,mm$

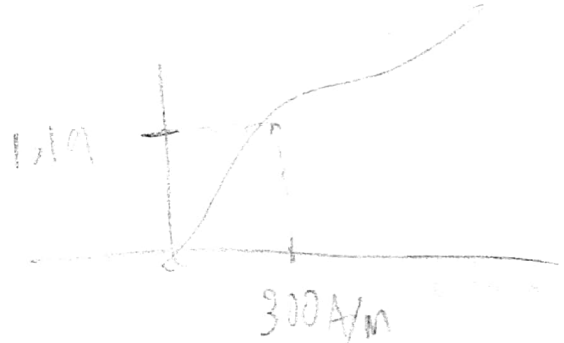
$\phi = 15\,mWb$

$\phi = BA$

$B = \frac{\phi}{A} = \frac{15 \times 10^{-3}\,Wb}{\pi (0.02)^2} = 1.194\,T$

Curva B-H

$H \simeq 300\,A/m$



$F_m = Hl$

$F_m = \left(300\,\frac{A}{m}\right)(280 \times 10^{-3}\,m)$

$F_m = 84\,A$

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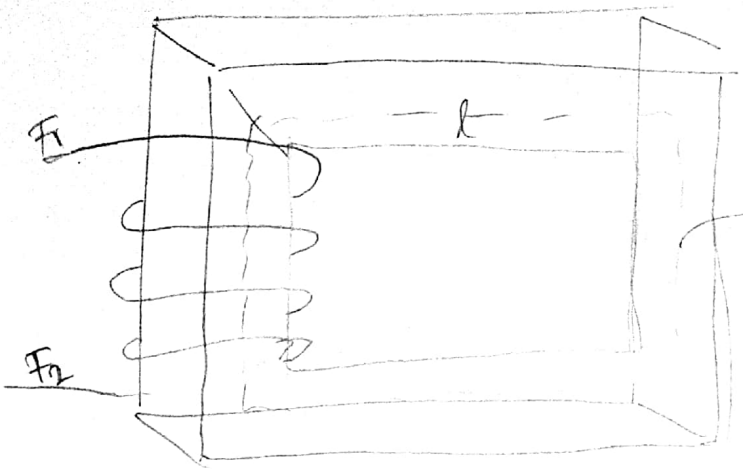

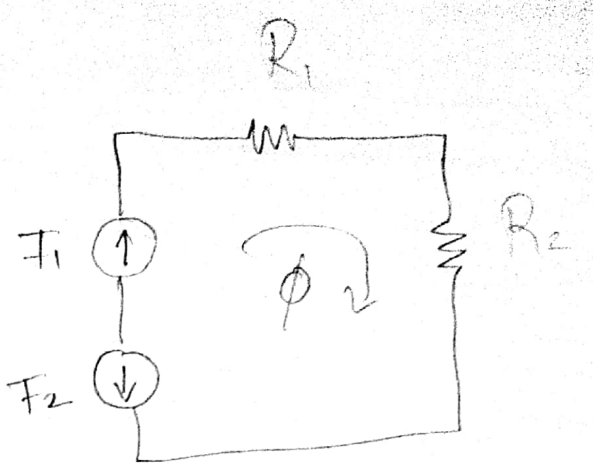

$\phi = 120\ \mu Wb$

$I_2 = 0.5A$

$N_1 = 200$ vueltas

$N_2 = 400$ vueltas

$F_1 - F_2 = \phi (R_1 + R_2)$

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

$B_1 = \frac{120 \times 10^{-6} Wb}{6 \times 10^{-4}} = 0.2T$

$B_2 = \frac{120 \times 10^{-6} Wb}{1 \times 10^{-4} m^2} = 0.3T$

Curva

$H_1 = 145\ H/m$

$H_2 = 185\ H/m$

$\mu_{r1} = \frac{B_1}{\mu_0 H_1} = 1097$

$\mu_{r2} = \frac{B_2}{\mu_0 H_2} = 1290$

$R_1 = \frac{0.34}{(12.56 \times 10^{-7})(1097)(6 \times 10^{-4})} = 411274$

$R_2 = \frac{0.16}{(12.56 \times 10^{-7})(1097)(1 \times 10^{-4})} = 246877$

$F_{mm} = (120 \times 10^{-6} Wb)(R_1 + R_2)$

$F_{mm} = (120 \times 10^{-6} Wb)(411274 + 246877)$

$F_{mm} = 78.98A$

$N_1 I_1 = H_1 l_1$

$I_1 = \frac{H_1 l_1}{N_1} = \frac{(145)(0.34)}{200} = 0.25A$

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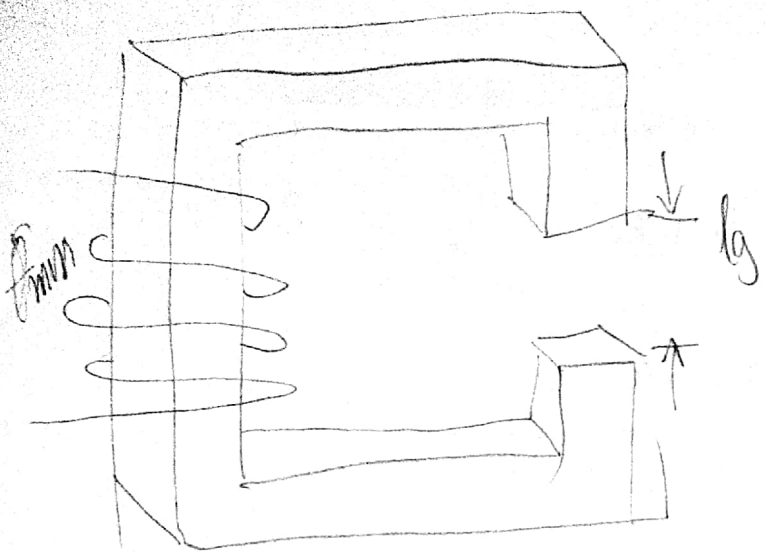


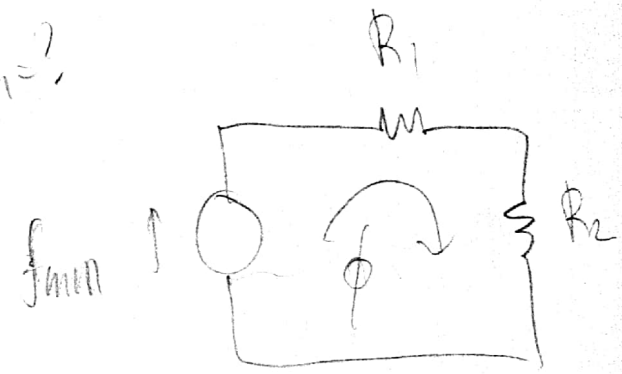
$A = 10\,mm \times 8\,mm$

$l_a = 150\,mm$

$l_g = 0.8\,mm$

$\phi_g = 8\,\mu Wb$

$f_{mm} = ?$



$$B_g = \frac{\phi}{A} = \frac{80 \times 10^{-6}\,wb}{(0.01)(0.008)} = 1T$$

silicio acero ⟶ curva B - H

$H = 165.5\,t/m$

$$Hl = (165.5)(0.15) = 24.82\,A$$

$$A = (0.01 + 0.0008)(0.008 + 0.0008)$$

$$A = 9.5 \times 10^{-5}\,m^2$$

$$Hl = \frac{\phi}{\mu_0 A} l_a = \frac{(80 \times 10^{-6})(8 \times 10^{-4})}{(12.57 \times 10^{-7})(9.5 \times 10^{-5})} = 536\,A$$

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