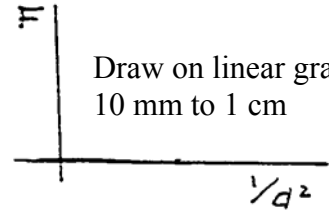
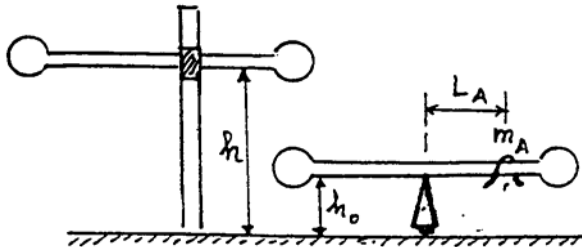


Name _____ Partner _____

Date _____

Part 1



$m_A =$ _____ kg

$g = 9.8 \text{ m/s}^2$

$h_0 =$ _____ m

$\mu_0 = 4 \pi \cdot 10^{-7} \text{ N/A}^2$

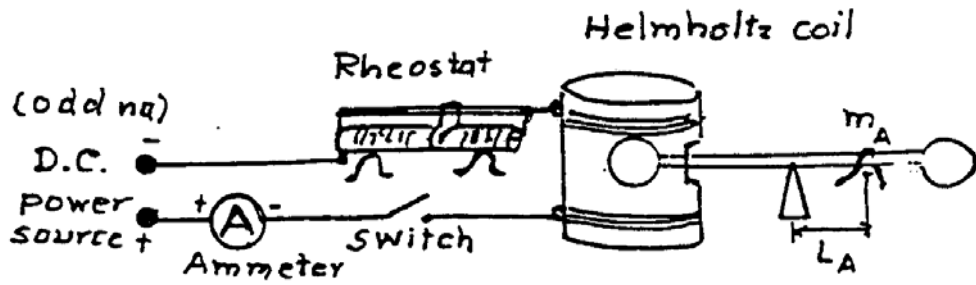
$L_A, \text{ m}$	0.01	0.03	0.05	0.07	0.09
$h, \text{ m}$					
$d = h - h_0, \text{ m}$					
$d^2, \text{ m}^2$					
$1/d^2, \text{ m}^{-2}$					
$F = m_A g L_A / 0.10, \text{ N}$					

From equation (1) $F_{\text{mag}} = \mu_0 M_1 M_2 / (4\pi d^2)$, considering $M_1 = M_2$, slope of the line $= \mu_0 M^2 / 4\pi$

From the graph, slope = _____

$M =$ _____ A m.

Part 2



Number of turns in the coil, $N=9$; radius of the coil, $a= \underline{\hspace{2cm}}$ m, $L=0.1$ m

L_A , m	0.01	0.03	0.05	0.07	0.09
I , A					
$B = 8\mu_0 N I / [a (125)^{1/2}]$, Tesla					
$M = m_A g L_A / B L$, A m					

M average = $\underline{\hspace{2cm}}$ A m