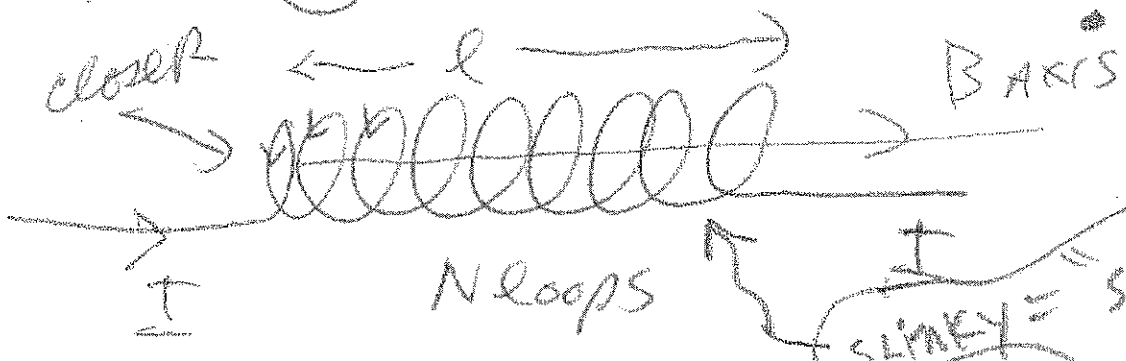
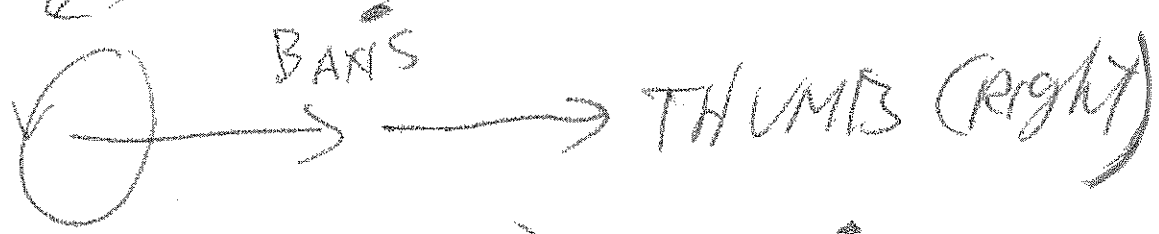


3-28-14 and 5-2-14 (part II)  
 DATA - Slinky

2.0 A ~ 5.5 (V) scale

POWER SUPPLY CALIBRATION

fingers (right)



Slinky = "solenoid" in your AUTO START

Ch 28:  $B_{AXIS} = \mu_0 n \cdot I$

Part I

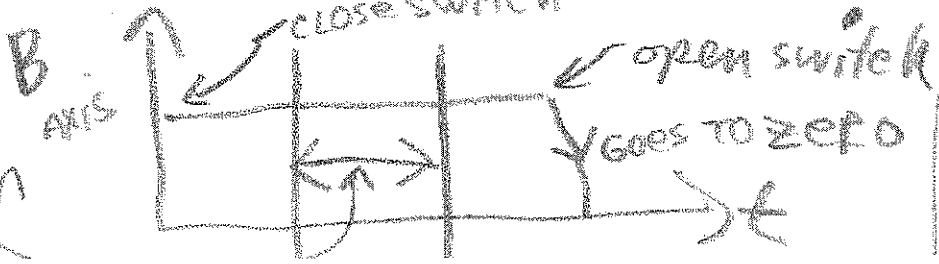
$n = \frac{N}{l}$

PROCEDURE:  $I = 0.5(A)$

CLICK collect: close switch and collect

PART I ONLY

select click = STAT. button



RECORDS: BANG AND ALL # AFTER CLICK

Increase  $I$  to  $1.0(A)$ . repeat.

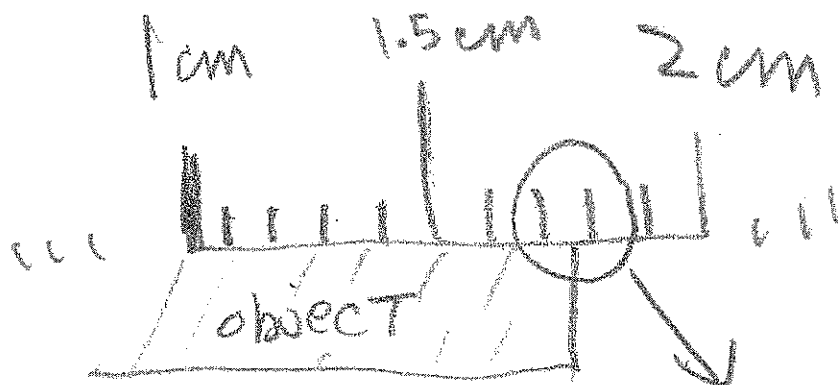
repeat previous SELECT-STAT

step. until  $I = 2.0(A)$  in

$0.5(A)$  increments.

\* count  $N$

\* measure  $l$  to nearest  $0.1\text{cm}$   
 $= 1\text{mm}$



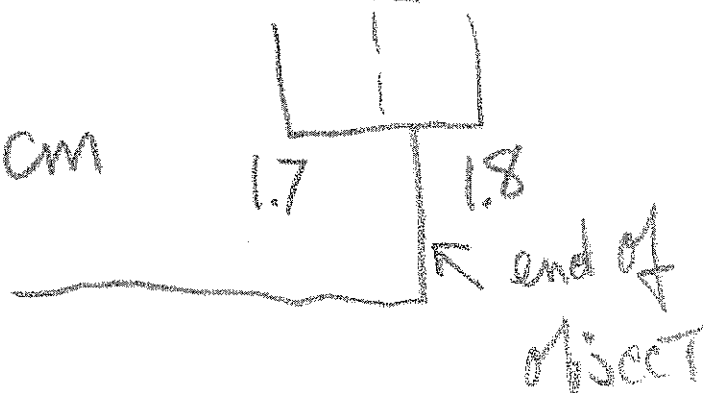
BLOW UP

← divide into 2.

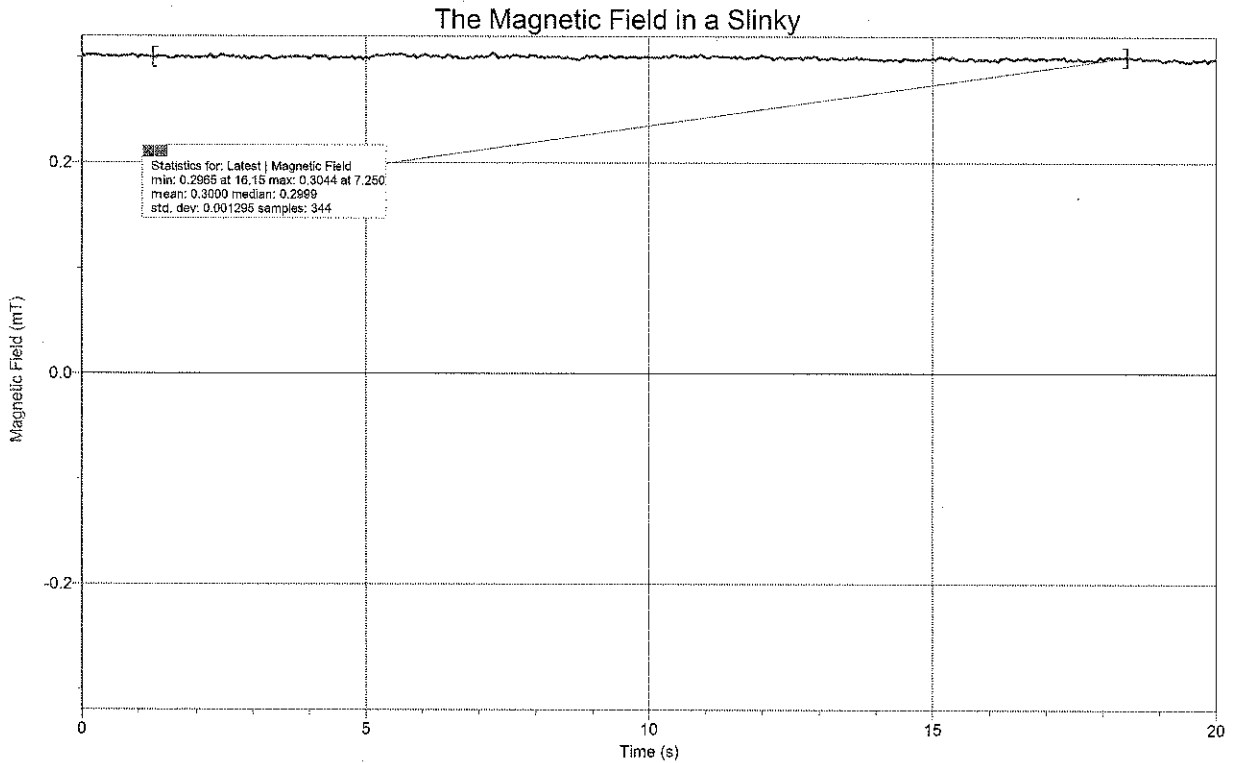
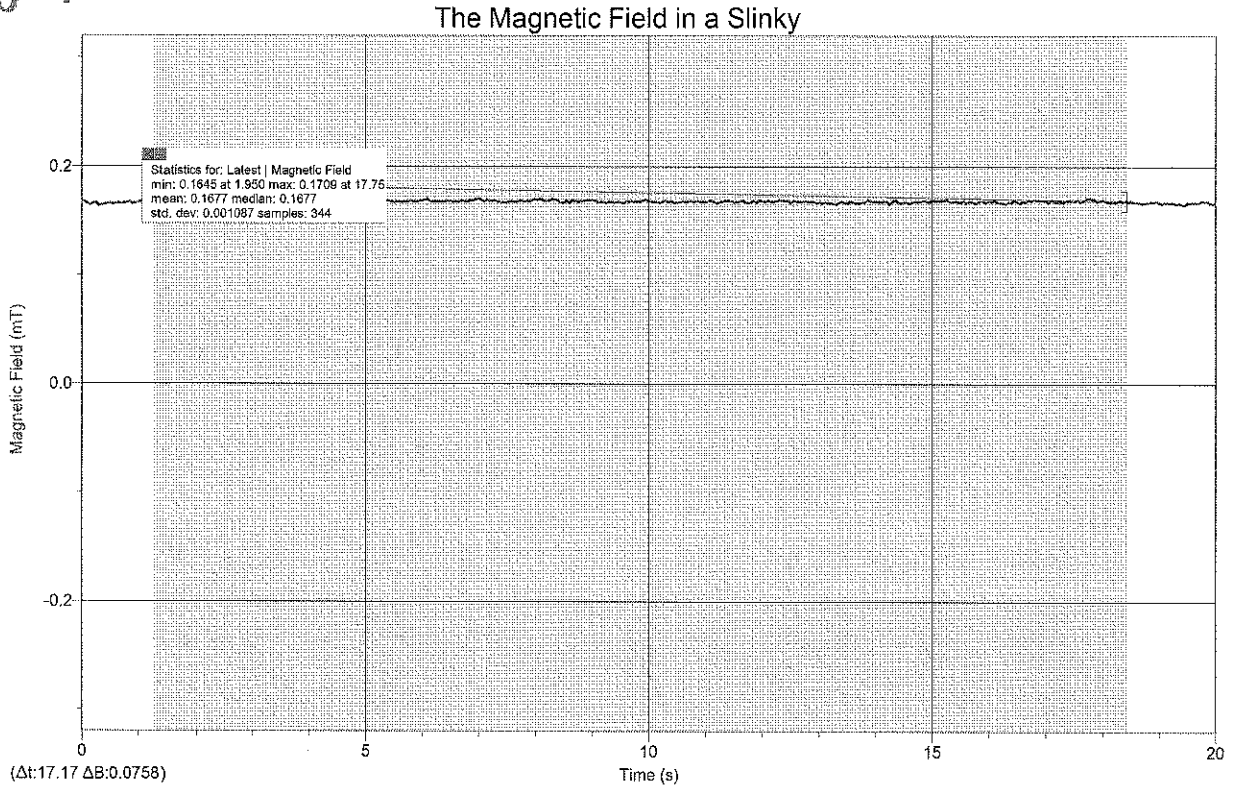
Object length

$$= (1.80 \pm 0.05)\text{cm}$$

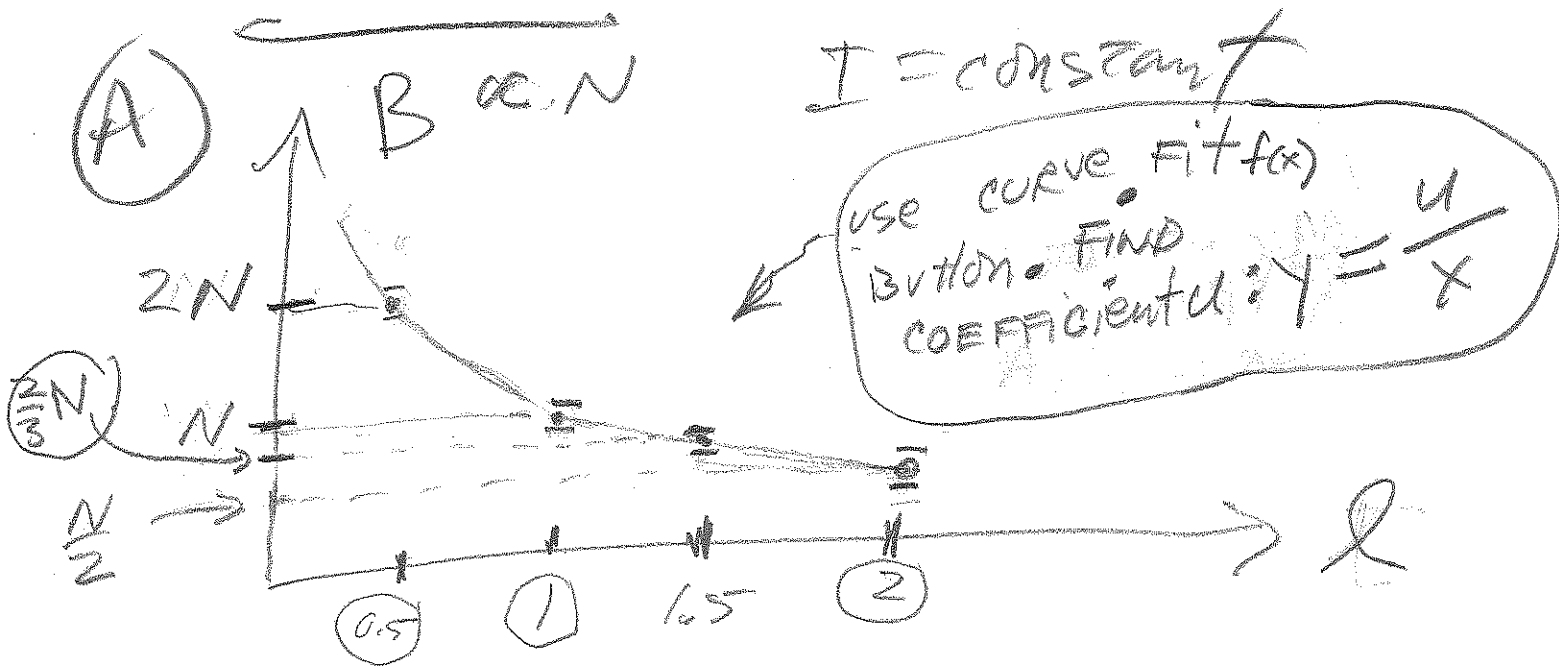
↑  
 $0.8\text{cm}$



Part II samples:



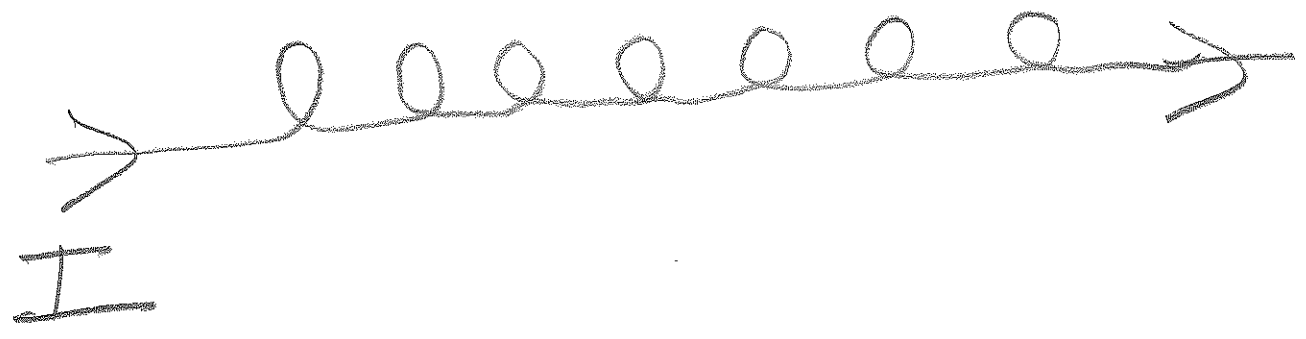
# Part 2 EXERCISES:

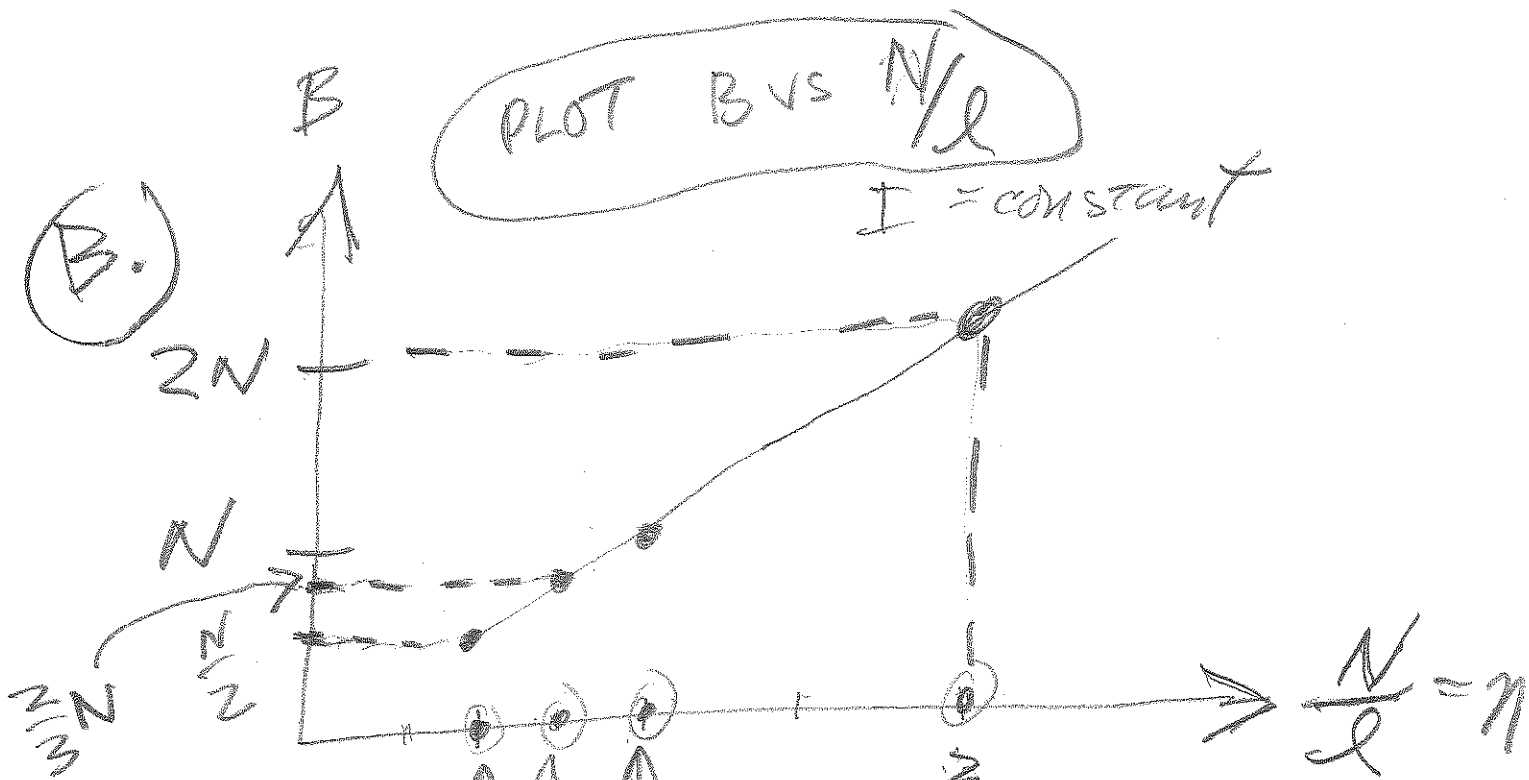


$$B = \mu_0 \cdot n \cdot I$$

$$B = \mu_0 \cdot \frac{N}{l} \cdot I$$

$B \propto \frac{1}{l}$





see Analysis Questions # 5-10.

use logger pro!  
 FIND slope using R - button. RECORD RMSE.

FROM slope FIND  $M_0 \text{ exp.}$

FIND percent error with  $M_0 \text{ TH}$

Wait for additional notes on possibly more error range analysis:

$$M_{0 \text{ MIN}} < M_0 \text{ TH} < M_{0 \text{ MAX}}$$

$$(M_0 I)_{\min} < M_0 \cdot I_{TH} < (M_0 I)_{\max}$$

$$M_0 I_{\max} = \text{slope} + \text{RMSE}$$

$$M_0 I_{\min} = \text{slope} - \text{RMSE}$$