Lab Quiz for PHY324

Q1: What experiment are you doing?

Current balance

Q2: Summarize the physics elements in this experiment.

There's a force created when 2 currents are close to each other, so the free to move wire will be repelled, as well as the mirror on the wire, so we can calculate how much it moves by similar triangles, with the reading scales reflected to ruler.

Q3: Describe one major goal of the lab.

We are going to determine μ_0 for the formular $\frac{F}{L} = \frac{\mu_0 I^2}{2\pi d}$.
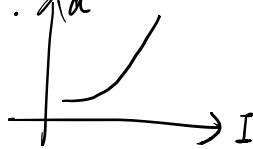
Q4: What do you measure directly in pursuit of the major goal described above?

we are going to measure the distance moved between wires, as well as the current. The distance wire moves (details in Q5).

Q5: Outline how you get the answer to Q3 from the data collected as described in Q4. If you will graph data to achieve the goal in Q3 then explain what you will graph, what the trend-line will look like, and how it achieves the goal in Q3. Include any equations you will use to turn the data described in Q4 into the answer described in Q3.

There's a mirror attached on the wire, use the scope to see how much distance the crosshair moves, and calculate the distance wire moves by similar triangles (Q6).
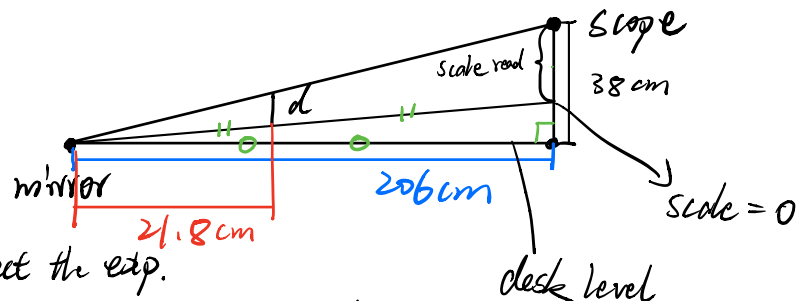Plot: deflection vs. current.

When we have L, d, I, we can measure μ_0 with $\frac{F}{L} = \frac{\mu_0 I^2}{2\pi d}$

Q6: Your TA asked you a/some question(s) about the equipment. Write the question(s) and answer(s) here.

Q1. Draw the graph of the set up.

$$\frac{d}{scale\ read} = \frac{\shortmid\shortmid}{\shortmid\shortmid} = \frac{o}{o}$$

Q2. Does AC in the current affect the exp.

The transformers can be used to adjust the voltage applied to the circuite, thus changing the current passing through it. The Earth magnetic field will be canceled if use AC because AC goes in 2 directions, but DC does not.