

Name: _____ Partner: _____ PH2223 - ____

Experiment Sheet for Construction of a Voltmeter and Ammeter

Finding the Resistance of the Galvanometer (Part 1): $R_1 =$ _____ and $R_2 = R_g =$ _____**Question:**

To find R_g you varied R_2 until the galvanometer read half-scale. Why would this mean that R_g equals R_2 ? You may wait until the end of the experiment to answer this question.

 $I_g =$ _____ Show your calculation for I_g in the space below.**Construction of a Voltmeter (Part 2):**

Hints for finding R_s : Recall that $V = IR$. Use 3V for “V” and I_g for “I.”

 $R_s =$ _____ Show your calculation for R_s in the space below.**Questions:**

When checking your “voltmeter” was 1V approximately 1/3 rd of the scale voltage? _____

What should you use as your series resistor (R_s) if you wanted a full-scale reading to represent 10V? Show your work in the space below.

Construction of an Ammeter (Part 3):

Hints for finding R_p : Since we want 3A to be our “full-scale” on the ammeter then (in figure 3) 3A will be coming in to our ammeter at point a and exiting our ammeter at point b. Recall from earlier how much current will make your galvanometer read full-scale. Notice that the rest of the 3A will have to go through R_p . Recall that $V = IR$ and that the voltage across the galvanometer will be the same as the voltage across R_p . Now find R_p .

$R_p =$ _____ Show your calculations for finding R_p in the space below.

Questions:

Which gauge of wire did you use? _____

What effective length (L) did you use? _____ Show your calculation for L in the space below.

Theoretically, given your actual voltage and a 2Ω resistor what current should your ammeter measure?

Did your ammeter approximately reflect this amount when you measured this current? _____