

Lab 2

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No lab partner data

Give numbers to proper precision.

The volume of the mug was found using a ruler. The mug was placed under a slowly running faucet and an iPhone timer was used to count how long it took to fill up. This was done 20 times and the averages were taken at the end. The volume of the mug was $480.1 \text{ mL} \pm 26.2 \text{ mL}$ and the time to fill the mug was $16.3 \text{ s} \pm 0.4 \text{ s}$ which gave an average flow rate of $29.4540 \text{ mL/s} \pm 2.330 \text{ mL/s}$ [See

Your Excel file does not show the computation, it only shows the results of your calculations by hand.

Excel]. Some problems I had with the lab was that it was difficult to determine when the mug was full and the time it took me to react to the timer when the mug was full. I believe my measurements are accurate because I had a relatively small uncertainty in the flow rate.

Go one step further. Do these problems make you arrive at a reported value that is too high or too low?

Other comments:

- The uncertainty reported in this lab came from a Standard Deviation [incorrect], not the Standard Deviation of the Mean [correct].
- There is no structure in the report. It is hard to sift through your paragraph for useful information.
- Timing errors from human fallibility are examples of RANDOM error. As such, these are mostly eliminated by repeating independent measurements. This means that they are not a valid "difficulty" in completing the lab. You addressed this difficulty in your procedure by stating that you repeated the trial 20 times.

