Basic Lab Techniques

A. Review all pre-lab questions, the report and post-lab questions.
B. Work the sample questions. Remember that all possible types of questions may not be represented.

Sample problems

1. Know the correct number of decimal places to which each lab measuring device should be read. (p. 4-5 & 9)

2. What is the difference between direct weighing and weighing by difference?

3. Know what accuracy and precision is and how you determined each in lab (p 5-6 of lab).

4. Be able to calculate an average, % error, and deviation. Keep track of sig fig and units.

Example: Fill in the blanks

Mass (in g) of Water Transferred	Student 1
Trial 1	9.885 g
Trial 2	9.616 g
Trial 3	9.770 g
Average Mass	
True value for mass	9.995 g
% error for Trial 1	
Deviation for Trial 1	

Some Answers

2. What is the difference between direct weighing and weighing by difference? ***In direct weighing, a piece of weighing paper (or container) is placed on the balance and TARE is pushed. Then the material to be weighed is placed on the paper and the mass is read directly. In weighing by difference, the balance is first zeroed by pushing TARE . Then the mass of the "container" and the mass of "container plus material" are determined separately and the difference between them is the mass of the material.***

3. Know what accuracy (***how close a measurement is to the true value***) and precision (***how close together several determinations of one value are***) is and how you determined each in lab. ***("% error" close to zero for best accuracy and a small "deviation" for good precision)***

4. Be able to calculate the average, the % error, and the deviation. Keep track of sig fig and units.

Example: Fill in the blanks

Mass (in g) of Water Transferred	Student 1
Trial 1	9.885 g
Trial 2	9.616 g
Trial 3	9.770 g
Average Mass	***9.757 g***
True value for mass	9.995 g
% error for Trial 1	***-1.10 %***
Deviation for Trial 1	***0.128 g***