



Practice – Part 2

Instructions: Answer each of the following practice questions on a separate piece of paper. Step by step solutions are provided under the Solutions tab. You will learn the material more thoroughly if you complete the questions before checking the answers under the Solutions tab in Moodle.

1. Hamal has two beakers available to measure 1 500 mL of water to boil spaghetti. One of the beakers has a maximum reading of 100 mL. The water can be measured in increments of 10 mL. The second beaker has a maximum reading of 300 mL. The water can be measured in increments of 25 mL.



- a. State the precision and uncertainty of each beaker.
 - b. If Hamal fills each beaker to 75 mL, what volume of water could be in each beaker?
 - c. Which beaker is more suitable to use to fill his pot with 1 500 mL of water to boil spaghetti?
2. Erica measures the diameter of a wire (with true measurement of the diameter is 1.25683 mm) using different measuring devices. For each measuring tool, state the measurement that should be recorded and the measurement of uncertainty.

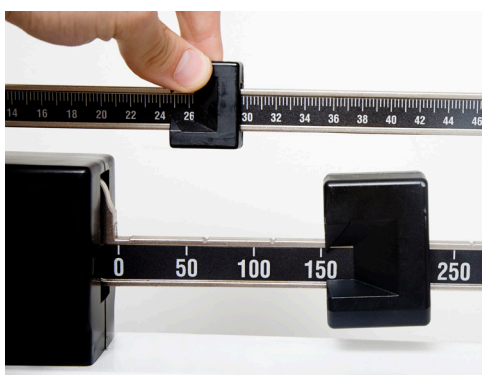


- a. ruler marked in centimetres
- b. tape measure marked in millimetres
- c. ruler marked in half-millimetres
- d. calliper, smallest increment is 0.01 mm
- e. micrometer, smallest increment is 0.002 mm

3. Juan recorded his weight on his bathroom scale as 176.5 lb.



Minutes later, Juan used a medical scale at the gym and recorded his weight as 174.8 lb.



Juan then found a calibrated scale and measured his actual weight to be 176.1 lb. Answer the following questions by comparing the measurements from the bathroom and medical scales.

- What are the uncertainties for each scale?
- What is the range of measurement for both the bathroom scale and the medical scale?
- Which scale is more accurate: the bathroom scale or medical scale?
- Which scale is more precise: the bathroom scale or medical scale?
- How could the accuracy of the medical scale be improved?