
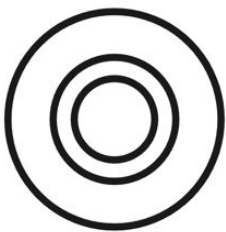


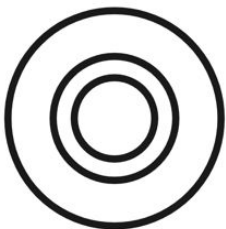
N	105 Uncertainty in Measurement	
	Objectives 105.1 Distinguish between accuracy and precision 105.2 Calculate Percent Error	

105.1 Accuracy and Precision

1. What is accuracy?



2. What is precision?



3. Determine the level of accuracy and precision for the targets below by writing high or low in the table.



4. Students conducted an experiment to determine an object's mass. The accepted mass is 35.9 g.

Students	Trial 1	Trial 2	Trial 3	Average
Lorraine				
Alicia				
Jennifer				

a. Identify which student has the high accuracy but low precision.

b. Identify which student has high precision but low accuracy.

105.2 Percent Error

1. What is percent error?

2. A student determines the density of zinc to be 7.56 g/mL. If the accepted density is 7.14 g/mL what is the student's percent error?

3. A student determined experimentally the molarity of KOH (aq) to be 0.95 M. The actual molarity was 0.83 M. What is the percent error in the student's experiment?

105 Concept Check

1. A student determined in the laboratory that the percent by mass of water in $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is 40%. If the accepted value is 36%, what is the percent error?
2. A student intended to make a salt solution with a concentration of 10.0 grams of solute per liter of solution. When the student's solution was analyzed, it was found to contain 8.90 grams of solute per liter of solution. What was the percent error in the concentration of the solution?
3. A student measured the wavelength of hydrogen's visible red spectral line to be 627 nanometers. The accepted value is 656 nanometers. What is the student's percent error?
4. A student determines the density of an element to be 1.56 grams per cubic centimeter. If the accepted value is 1.68 grams per cubic centimeter, what is the student's percent error?