DEPARTMENT OF CHEMISTRY and LABORATORY TECHNOLOGY
Chemistry of Solutions : 202-SN2-RE (W2026)
LABORATORY ASSESSMENT: **PRECISION**

Name: _____ _____
first (print) *family (print)*

Objective

This experiment is conducted to evaluate the user's precision in the use of laboratory glassware (pipette) by assessing the reproducibility of their measurements.

Procedure

A 125 mL Erlenmeyer flask with a stopper is used to measure the mass of several aliquots of water.

First, the empty Erlenmeyer flask + stopper are weighed.

Then, three aliquots of water will be added one at a time using a 10.00 mL pipette, and the mass of each addition will be measured (see table below).

Finally, the mass of each individual aliquot will be determined by weighing by difference.

Table of data			Table of results
Aliquot		Mass (g)	individual aliquot mass (g)
	Erlenmeyer + stopper (empty)		
1	Erlenmeyer + stopper + 10 mL water:		(1)
2	Erlenmeyer + stopper + 20 mL water:		(2)
3*	Erlenmeyer + stopper + 30 mL water:		(3)
	Teacher signature:		

***IMPORTANT**: The mass of the last weighing (**aliquot 3**) must be confirmed and recorded **in the presence of the teacher**.

For the teacher (grading) Mark

−0.5 mark: math, significant figure to a maximum of −1 mark

Standard deviation (σ) for the three 10.00 mL aliquot : _____ / 5

Mark = 5.0 − 100 x (σ − 0.030) *for a maximum of 5 and a minimum of 0.*

Flip the page to complete the assessment

DEPARTMENT OF CHEMISTRY and LABORATORY TECHNOLOGY
Chemistry of Solutions : 202-SN2-RE (W2026)
LABORATORY ASSESSMENT: **ACCURACY**

Name: _____ _____
first (print) *family (print)*

Objective

An experiment is conducted to assess the user's ability to perform acid-base titration for the determination of the concentration of an unknown acid. This technique will assess the accuracy of the experimenter for the determination of an unknown concentration.

Procedure

10.00 mL of a hydrochloric acid (HCl) solution of unknown concentration is added to a 250 mL Erlenmeyer flask. 50 mL of distilled water and 3 drops of indicator are then added.

A titration is performed with sodium hydroxide (NaOH) by adding the base using a burette until the end point is reached.

The experiment will be repeated a second time, and the average value of the two titrations will be used to determine the concentration of the unknown acid.

Table of data and results

Space for calculations (optional)

Unknown number _____

NaOH concentration / M _____

	Trial 1	*Trial 2*
Initial burette volume / mL		
Final burette volume / mL		
Volume of base added / mL		
Amount of base added / mol		
Acid concentration / M		

Average acid concentration / M _____

For the teacher (grading)

Grade

−0.5 mark: math, significant figure to a maximum of −1 mark

Actual unknown acid concentration: _____ %error = _____

/ 5

Mark = 8.0 − %error *for a maximum of 5 and a minimum of 0.*

Flip the page to complete the assessment