

Chapter 1 Test Review

(Gen)

Name: _____

Accuracy, Precision, & Percent Error

1) A student measured the temperature of a boiling solution and found it to be 56.0°C. The theoretical temperature of that boiling solution is 55°C. What is the percent error in the student's measurement?

2) The density of a nickel was determined in an experiment to be:

Trial 1: 7.25 g/mL Trial 2: 7.23 g/mL Trial 3: 7.28 g/mL

The theoretical density of a nickel is 8.91 g/mL.

A) What is the percent error of the measurements collected in the experiment?

B) Is the data precise, accurate, neither, or both? Explain your answer.

3) The density of brass was tested in an experiment using water displacement in three trials. The data collected is given below. The theoretical density of brass is **8.40 g/mL**.

	Mass	Starting Volume	Final Volume
Trial 1	8.68 g	15.2 mL	16.6 mL
Trial 2	14.52 g	18.9 mL	21.5 mL
Trial 3	13.11 g	13.4 mL	15.6 mL

(a) Is the data precise? _____

(b) Calculate the percent error.

(c) Based on the percent error, is the data accurate? _____

Measurement**Put in scientific notation:**

4) 504,000 _____

5) 0.003079 _____

6) 0.040 _____

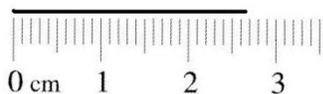
7) 1,405,000,000 _____

Take out of scientific notation:8) 5.12×10^{-3} _____10) 8.6×10^5 _____9) 4.20×10^4 _____11) 3.0×10^{-4} _____

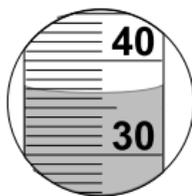
12) Circle the estimated digit in each measurement: 54.39 g 31.571 mL 70.0°C

13) Measure the following using the correct number of significant figures.

A) _____ cm



B) _____ mL



C) _____ mL



Significant Figures

How many significant figures are in the following?

14) 70.0 g _____

17) 0.0400 mL _____

20) 2.0×10^{-3} kL _____

15) 0.0069 mg _____

18) 6200 cm _____

21) 403.00 g _____

16) 5.60×10^4 km _____

19) 200 mi _____

22) 0.24 mm _____

Solve each problem using the correct number of significant figures in your answer.

23) $28.21 \text{ g} + 3.829 \text{ g} + 45.8 \text{ g}$

25) $24.00 \text{ cm} / 6.00 \text{ cm}$

24) $2.36 \text{ m} \times 17.00 \text{ m} \times 0.088 \text{ m}$

26) $65.344 \text{ mL} - 18.67 \text{ mL}$

Experimental Design

Steven wanted to determine how the amount of sugar that is soluble in water changes with the temperature of the water. He bought a large bag of sugar from the grocery store to make sure the sugar was the same throughout the experiment. Steven also decided to test each temperature of water four times in beakers of the same size filled with 100 mL of distilled water. He tested room temperature (18°C), 25°C, and 30°C samples of water. When adding the sugar, he made sure to only stir until the sugar dissolved. He discovered that the greatest amount of sugar dissolved in the water that was 30°C.

Independent Variable: _____

Levels of IV (label the control)				
# of Trials				

Dependent Variable: _____

Constants: (list as many as possible)
