Name _____ Class _____ Date _____

Assessment

Measurements and Calculations

Section Quiz: Using Scientific Measurements

In the space provided, write the letter of the term or phrase that best completes each sentence or best answers each question.

_____ **1.** A chemical reaction was carried out three times. The mass of the product was 8.93 g for the first trial, 8.94 g for the second trial, and 8.92 g for the third trial. Under the conditions of the experiment, the reaction is known to yield 8.60 g of product. The three mass values measured are
- **a.** accurate.
- **b.** precise.
- **c.** both accurate and precise.
- **d.** neither accurate nor precise.

_____ **2.** For numbers less than 0.1, such as 0.06, the zeros to the right of the decimal point but before the first nonzero digit
- **a.** are significant.
- **b.** show the decimal place of the first digit.
- **c.** show that the zero on the left side of the decimal is not significant.
- **d.** are always uncertain.

_____ **3.** The number of significant figures in the measurement 0.000 305 kg is
- **a.** two.
- **b.** three.
- **c.** six.
- **d.** seven.

_____ **4.** Written in scientific notation, the measurement 0.000 065 cm is
- **a.** 65×10^{-4} cm.
- **b.** 6.5×10^{-5} cm.
- **c.** 6.5×10^{-6} cm.
- **d.** 6.5×10^{-4} cm.

_____ **5.** When the difference between a measured value and the known value is expressed as percentage error, it is usually written as
- **a.** a positive number.
- **b.** a negative number.
- **c.** both positive and negative.
- **d.** either a negative number or a positive number.

Section Quiz, *continued*

_____ **6.** A measurement is accurate if it
- **a.** is reproducible.
- **b.** is close to the true value.
- **c.** has many decimal places.
- **d.** has many significant figures.

_____ **7.** To determine the number of significant digits in a measurement, follow the rule that
- **a.** all zeros are significant.
- **b.** all nonzero digits are significant.
- **c.** zeros between digits are not significant.
- **d.** final digits less than 5 are not significant.

_____ **8.** The measurement 0.0255 g, rounded off to two significant figures, would be
- **a.** 0.02 g.
- **b.** 0.025 g.
- **c.** 0.026 g.
- **d.** 2.5×10^2 g.

_____ **9.** What is 1×10^2 divided by 1×10^{-3}?
- **a.** 1×10^{-6}
- **b.** 1×10^{-1}
- **c.** $1 \times 10^{\frac{2}{3}}$
- **d.** 1×10^5

_____ **10.** What is the sum of 100.0 g and 0.01 g, expressed in scientific notation and written with the correct number of significant figures?
- **a.** $10\,001 \times 10^{-2}$ g
- **b.** 1.0×10^2 g
- **c.** 1.000×10^2 g
- **d.** 1.00×10^2 g