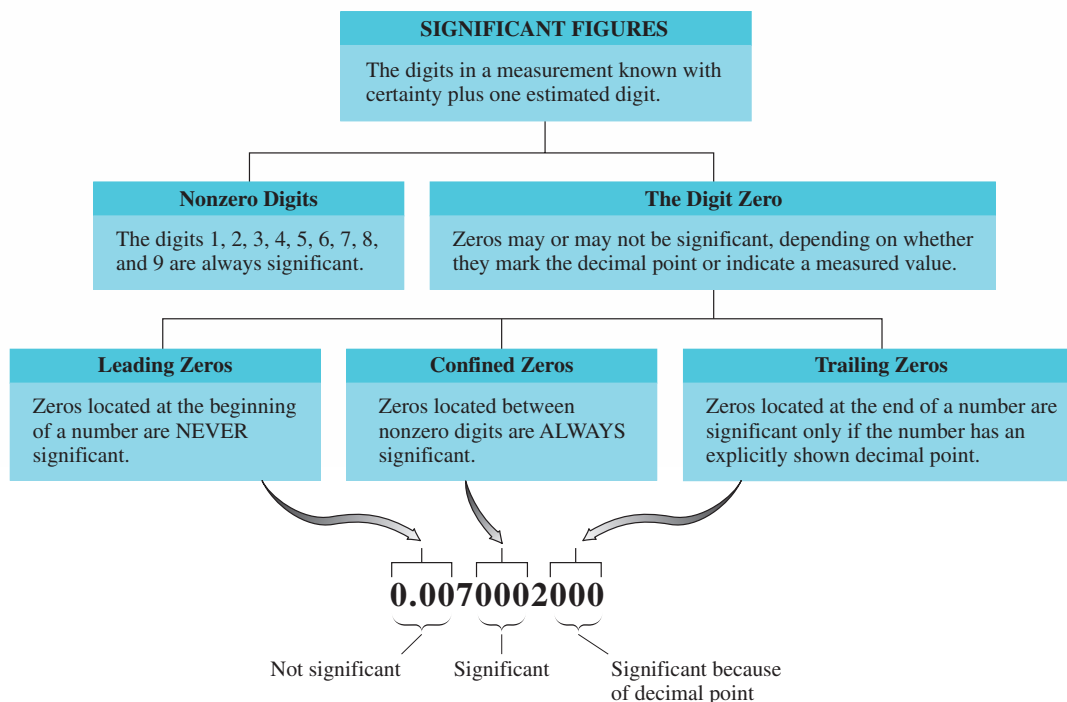


CHEMISTRY AT A GLANCE

Significant Figures



- b.** Two significant figures are present because leading zeros are never significant. The uncertainty is in the ten-thousandths place (± 0.0001), the location of the last significant digit.
- c.** Three significant figures are present because the trailing zeros are not significant (no explicit decimal point is shown). The uncertainty is in the hundreds place (± 100).
- d.** Three significant figures are present, and the uncertainty is in the ones place (± 1).

Practice Exercise 2.2

For each of the following measurements, give the number of significant figures present and the uncertainty associated with the measurement.

- a.** 727.23 **b.** 0.1031 **c.** 47,230 **d.** 637,000,000

Answers: **a.** 5, ± 0.01 ; **b.** 4, ± 0.0001 ; **c.** 4, ± 10 ; **d.** 3, $\pm 1,000,000$



SIGNIFICANT FIGURES AND MATHEMATICAL OPERATIONS

When measurements are added, subtracted, multiplied, or divided, consideration must be given to the number of significant figures in the computed result. Mathematical operations should not increase (or decrease) the uncertainty of experimental measurements.