CHAPTER 2 REVIEW

CHAPTER SUMMARY

2-1

- The scientific method is a logical approach to solving problems that lend themselves to investigation.
- The processes of observing, generalizing, theorizing, and testing are aspects of the scientific method.
- A hypothesis is a testable statement that serves as the basis for predictions and further experiments.
- A theory is a broad generalization that explains a body of known facts or phenomena.

Vocabulary

hypothesis (30) scientific method (29) system (29) theory (31)
model (31)

2-2

- The result of nearly every measurement is a number and a unit.
- The SI system of measurement is used in science. It has seven base units: the meter (length), kilogram (mass), second (time), kelvin (temperature), mole (quantity of substance), ampere (electric current), and candela (luminous intensity).
- Weight is a measure of the gravitational pull on matter.
- Derived SI units include the square meter (area) and the cubic meter (volume).
- Density is the ratio of mass to volume.
- Conversion factors are used to convert from one unit to another.

Vocabulary

conversion factor (40) derived unit (36) SI (33) weight (35)
density (38) quantity (33) volume (37)

2-3

- Accuracy refers to the closeness of a measurement to the correct or accepted value. Precision refers to the closeness of values for a set of measurements.
- The measurement average is the sum of a group of measurements divided by the total number of measurements.
- Percent error is the difference between the accepted and the experimental value, divided by the accepted value, then multiplied by 100.
- The significant figures in a number consist of all digits known with certainty plus one final digit, which is uncertain or estimated. A set of logical rules must be followed to determine the number of significant figures in numbers containing zeros.
- After addition or subtraction, the answer should be rounded so that it has no more digits to the right of the decimal point than there are in the measurement with the smallest number of digits to the right of the decimal point. After multiplication or division, the answer should be rounded so that it has no more significant figures than there are in the measurement with the fewest number of significant figures.
- Exact conversion factors are completely certain and do not limit the number of digits in a calculation.
- A number written in scientific notation is of the form $M \times 10^n$, where M is greater than or equal to 1 but less than 10 and n is an integer.
- Two quantities are directly proportional to each other if dividing one by the other gives a constant value. The graphs of variables related in this way are straight lines that pass through the origin.
- Two quantities are inversely proportional to each other if their product has a constant value. The graphs of variables related in this way are hyperbolas.

Vocabulary

accuracy (44) indirectly proportional (55) precision (44) significant figures (46)
directly proportional (56) percent error (45) scientific notation (50)