SUPPLEMENTAL PROBLEMS

CHAPTER 2

1. Express the following numbers in scientific notation.

a. 810 000 g

b. 0.000634 g

c. 60 000 000 g

d. 0.0000010 g

2. Convert each of the following time measurements to its equivalent in seconds.

a. 58 ns

b. 0.046 Gs

c. 9270 ms

d. 12.3 ks

3. Solve the following problems. Express your answers in scientific notation.

a. 6.2×10^{-4} m + 5.7×10^{-3} m

b. 8.7×10^{8} km − 3.4×10^{7} m

c. $(9.21 \times 10^{-5}$ cm$)(1.83 \times 10^{8}$ cm$)$

d. $(2.63 \times 10^{-6}$ m$) \div (4.08 \times 10^{6}$ s$)$

4. State the number of significant digits in the following measurements.

a. 3218 kg

b. 60.080 kg

c. 801 kg

d. 0.000534 kg

5. State the number of significant digits in the following measurements.

a. 5.60×10^{8} m

b. 3.0005×10^{-6} m

c. 8.0×10^{10} m

d. 9.204×10^{-3} m

6. Add or subtract as indicated and state the answer with the correct number of significant digits.

a. 85.26 g + 4.7 g

b. 1.07 km + 0.608 km

c. 186.4 kg − 57.83 kg

d. 60.08 s − 12.2 s

7. Multiply or divide as indicated using significant digits correctly.

a. $(5 \times 10^{8}$ m$)(4.2 \times 10^{7}$ m$)$

b. $(1.67 \times 10^{-2}$ km$)(8.5 \times 10^{-6}$ km$)$

c. $(2.6 \times 10^{4}$ kg$) \div (9.4 \times 10^{3}$ m$^3)$

d. $(6.3 \times 10^{-1}$ m$) \div (3.8 \times 10^{2}$ s$)$

8. A rectangular room is 8.7 m by 2.41 m.

a. What length of baseboard molding must be purchased to go around the perimeter of the floor?

b. What area must be covered if floor tiles are laid?

9. The following data table was established to show the total distances an object fell during various lengths of time.

Time (s)	Distance (m)
1.0	5
2.0	20
3.0	44
4.0	78
5.0	123

a. Plot distance versus time from the values given in the table and draw a curve that best fits all points.

b. Describe the resulting curve.

c. According to the graph, what is the relationship between distance and time for a free-falling object?

Chapter 2 (continued)

10. The total distance a lab cart travels during specified lengths of time is given in the following table.

Time (s)	Distance (m)
1.0	0.32
2.0	0.60
3.0	0.95
4.0	1.18
5.0	1.45

a. Plot distance versus time from the values given in the table and draw the curve that best fits all points.

b. Describe the resulting curve.

c. According to the graph, what type of relationship exists between the total distance traveled by the lab cart and the time?

d. What is the slope of this graph?

e. Write an equation relating distance and time for these data.

11. A cube has an edge of length 5.2 cm.

a. Find its surface area.

b. Find its volume.

12. A truck is traveling at a constant velocity of 70 km/h. Convert the velocity to m/s.

13. The density of gold is 19.3 g/cm^3. A gold washer has an outside radius of 4.3 cm and an inside radius of 2.1 cm. Its thickness is 0.14 cm. What is the mass of the washer?