Module 4/ Significant Figures

Worksheet

1. Solve each problem, and express each answer in correct scientific notation.

   a. $(4 \times 10^7)\,(2 \times 10^{-3})$

   b. $(6.3 \times 10^{-2})/\,2.1 \times 10^4$

   c. $(4.6 \times 10^3) - (1.8 \times 10^3)$

   d. $(7.1 \times 10^{-2}) + (5 \times 10^{-3})$

2. Determine the number of significant figures in each measurement.

   a. 0.057 30 meter

   b. 8765 meters

   c. 0.000 73 meter

   d. 40.007 meters

3. How many significant figures are in each measurement?

   a. 143 grams

   b. 0.074 meter

   c. 8.750×10^{-2} gram

   d. 1.072 meters

4. Round each measurement to three significant figures. Write your answers in scientific notation.

   a. 87.073 meters

   b. 4.3621×10^8 meters

   c. 0.015 52 meter

   d. 9009 meters

   e. 1.777×10^{-3} meter

   f. 629.55 meters

5. Round each measurement in Practice Problem 7 to one significant figure. Write your answers in scientific notation.

a.   b.   c.

d.   e.   f.

6. Perform each operation. Provide your answers to the correct number of significant figures.

a. 61.2 meters + 9.35 meters + 8.6 meters

b. 9.44 meters – 2.11 meters

c. 1.36 meters + 10.17 meters

d. 34.61 meters – 17.3 meters

7. Find the total mass of three diamonds that have masses of 14.2 grams, 8.73 grams and 0.912 gram.

8. Solve each problem. Provide your answers to the correct number of significant figures and in scientific notation.

a. 8.3 meters x 2.22 meters

b. 8432 meters/ 12.5

c. 35.2 seconds x 1 minute/ 60 seconds

9. Calculate the volume of a warehouse that has inside dimensions of 22.4 meters by 11.3 meters by 5.2 meters. (Volume = l x w x h)

10. Explain the differences between *accuracy*, *precision*, and *error* of a measurement.

11. Determine the number of significant figures in each of the following measurements and calculations results.

a. 12 basketball players   b. 0.010 square meter

c. 507 thumbtacks   d. 0.070 020 meter

e. 10 800 meters   f. 5.00 cubic meters

Problems from Wilbraham, Staley, Matta, & Waterman, (2002). *General Chemistry*, Prentice-Hall.