Chemistry 11

Sig Figs & Scientific Notation

Name: Key
Date:
Block:

1. State the number of significant figures in each measurement
   a. 3 734 grams
   b. 5 82.400 meters
   c. 2 92 000°C
   d. 1 0.003 second
   e. 3 607 liters
   f. 1 1×10^{-4} hertz

2. Round the number at left to the number of significant figures stated in each column.

Number	Four significant figures	Three significant figures	Two significant figures	One significant figure
84.631	84.63	84.6	85	80
0.945 00	0.9450	0.945	0.95	0.9
7.953 10	7.953	7.95	8.0	8
2 058 268	2058000	2060000	2100000	2000000

3. Perform the following operations. Round the answers to the appropriate number of significant figures.

a. 8.2 cm x 6.08 cm x 15.0 cm
= 750 cm

b. 34.8 meter / 3.048 seconds
= 11.4 m/s

c. $23.4^{o}C - 8.4^{o}C$
= $15.0^{\circ}C$

d. 65.48 g + 3.0 g + 0.882 g + 26.46 g
= 95.8g

4. Convert the following numbers from decimal to scientific notation. The answer must have the same number of significant figures as the original number.

a. 1.5×10^{8} km — 150 000 000 km (average distance between Earth and sun)

b. 1.98×10^{-4} cm — 0.000 198 cm (diameter of blood platelet)

c. 7400×10^{3} g — 7400. grams (mass of a bowling ball)

d. $6. \times 10^{0}$ Km/hr — 6 km/hour (fast walking speed)

5. Convert the following numbers from scientific notation to decimal notation.

a. 13000 km — 1.3×10^{4} km (diameter of Earth)

b. 3850000 mi^2 — 3.85×10^{6} square miles (area of US)

c. 0.0080 g — 8.0×10^{-3} gram (mass of a small spider)