

Name _____ **Key** _____ Date _____ Period _____

Significant Figures

AP Chemistry; Coleman

1. Give the number of significant figures in each of the following.

- a) 10.0005 g **_6 sig figs**
b) 0.003423 mm **_4 sig figs**
c) 2900 ft **_2 sig figs_**
d) 8.9×10^5 L **_2 sig figs**

2. Determine the answer for each of the following. Be sure to use the correct number of significant figures.

- a) $27.34 + 6.90 + 13.124 =$ **__47.36_** b) $2.8023 - 4.762 + 0.055 =$ **__-1.905__**
c) $(2.34 \times 10^{47}) + (9.2 \times 10^{46}) =$ **__3.3 x 10⁴⁷_** d) $0.32 \times 14.50 \times 120 =$ **__560__**
e) $24.1 / 0.005 =$ **__5000__** f) $(7.9 \times 10^{34}) / (8.32 \times 10^{23}) =$ **__9.5 x 10¹⁰_**

3. Round each of the following to 3 significant figures.

- a) 707.5 **__708__** b) 2,300.2 **__2300__** c) 15,067 **__15100__**
d) 0.0003350 **__0.000335__** e) 18.95×10^{21} **__19.0 x 10²¹_**

4. Convert each of the following into correct scientific notation.

- a) 1747 **__1.747 x 10³_**
b) 0.00000984 **__9.84 x 10⁻⁶_**
c) 3200000.0 **__3.2000000 x 10⁵_**
d) 0.00201400 **__2.01400 x 10⁻³_**
e) 25600000000000000 **__2.56 x 10¹⁶_**

5. Express the following numbers in standard notation.

- a) 8.1×10^7 g = **__81000000_** b) 3.34×10^{-4} g = **__0.000334_**
c) 6.0×10^{11} g = **__600000000000_** d) 1.022×10^{-10} g = **__0.0000000001022__**

6. Make the following mixed calculations and express the numbers with correct # of sig figs.

- a) $(5108 \text{ m}) / (4.2107 \text{ m}) + 62.4 \text{ m} =$ **1275**
b) Average the following data: 0.0055 g; 0.0054 g; 0.00538 g; 0.00542 **0.0054**

7. Two students measure the mass of the same beaker **using the same balance**. The first student reports the beaker's mass to be 47.0 g. The second student reports the mass to be 47 g. Explain the difference between the two values. Notice that they used the same tool to make the measurement. The second student didn't include an estimated digit (the 0). So their measurement is inaccurate. 😊