

AP Chemistry – Math and Nomenclature – 2

Name _____ Per _____

1. How many significant digits are in the following numbers?

- | | | | |
|----------------|-----------------|-----------------|-----------------|
| a. 2050 _____ | f. 0.0204 _____ | k. 0.741 _____ | p. 200.00 _____ |
| b. 3010 _____ | g. 210000 _____ | l. 0.0043 _____ | q. 9500. _____ |
| c. 5.100 _____ | h. 2050 _____ | m. 50.00 _____ | r. 10.30 _____ |
| d. 0.520 _____ | i. 70000 _____ | n. 0.10 _____ | s. 700 _____ |
| e. 0.602 _____ | j. 0.600 _____ | o. 2.1010 _____ | t. 12.0 _____ |

2. Perform the follow calculations.

- a. $5.203 \times 10^{-2} - 6.15 \times 10^{-3} =$ _____
- b. $0.5 * 160100 =$ _____
- c. $7999.5 + 872340 =$ _____
- d. $0.78976 / 2.5 \times 10^{15} =$ _____
- e. $(0.527) (0.000400) =$ _____

3. The density of gold is 19.3 g/cm^3 . If a sheet of gold is 10.3 cm wide, 46.1 cm long and 0.14 cm thick, then what is the mass of the gold sheet?

Answer _____

4. Write the IUPAC name of each of the following compounds.

- | | | | |
|----|----------------------------|----|-------|
| a. | Na_2CrO_4 | a. | _____ |
| b. | CaCl_2 | b. | _____ |
| c. | SO_2 | c. | _____ |
| d. | MgSO_4 | d. | _____ |
| e. | Na_2SO_3 | e. | _____ |
| f. | MnCO_3 | f. | _____ |
| g. | $\text{Zn}(\text{NO}_2)_2$ | g. | _____ |
| h. | CrO_3 | h. | _____ |
| i. | P_2O_3 | i. | _____ |

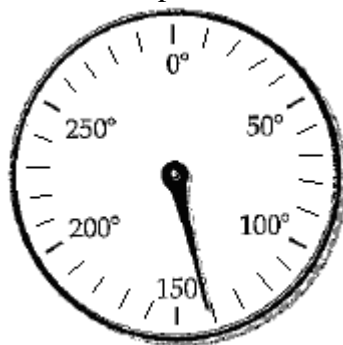
5. Write the chemical formula for each of the following compounds.

- | | | | |
|----|-------------------------|----|-------|
| a. | Carbon tetraiodide | a. | _____ |
| b. | Calcium Chlorate | b. | _____ |
| c. | Aluminum Bromide | c. | _____ |
| d. | Scandium(III) Phosphite | d. | _____ |
| e. | Manganese(IV) Sulfide | e. | _____ |
| f. | Ammonium Carbonate | f. | _____ |
| g. | Sodium Hydroxide | g. | _____ |
| h. | Dinitrogen Trioxide | h. | _____ |
| i. | Technetium(V) Sulfite | i. | _____ |

6. Indicate with a check mark which of the following are exact numbers:

- | | |
|---|-------|
| a) the mass of a 300 mL can of soda | _____ |
| b) the number of students in a class | _____ |
| c) the temperature of the surface of the sun | _____ |
| d) the mass of a postage stamp | _____ |
| e) the number of millimeters in a meter stick | _____ |
| f) the average height of students at school | _____ |

7. An oven thermometer with a circular scale is shown. What temperature does the scale indicate? How



many significant digits are used in the measurement? _____

8. The Morgan silver dollar has a mass of 26.73 g. By law, it was required to contain 90.0% silver, with the remainder being copper. a) When the coin was minted in the late 1800s, silver was worth \$1.18 per troy ounce (31.1 g). At this price what is the value of the silver in the silver dollar?

b) Today, silver sells for \$185 per troy ounce. How many Morgan silver dollars are required to obtain \$300.00 worth of pure silver?

9. A negatively charged particle is caused to move between two electrically charged plates, as illustrated in Figure 2.8 on page 39. a) Why does the path of the charged particle bend?

b) As the charge on the plates is increased, would you expect the bending to increase, decrease or stay the same?

c) As the mass of the particle is increased while the speed remains the same, would you expect the bending to increase, decrease or stay the same?

d) An unknown particle is sent through the apparatus. Its path is deflected in the opposite direction from the negatively charged particle, and it is deflected by a smaller magnitude. What can you conclude about this unknown particle's mass and charge?