Balance the following chemical equations:

1.
$$Au_2S_3(s) + H_2 \rightarrow Au(s) + H_2S(g)$$

2.
$$C_4H_{10}(g) + O_2(g) \rightarrow H_2O(l) + CO_2(g)$$

3.
$$Ca(OH)_2$$
 (ag) + H_3PO_4 (aq) $\rightarrow H_2O$ (l) + $Ca_3(PO_4)_2$ (s)

4.
$$Al(OH)_3$$
 (s) + HCl (aq) $\rightarrow AlCl_3$ (aq) + H_2O (l)

5.
$$AgNO_3 (aq) + H_2SO_4 (aq) \rightarrow Ag_2SO_4 (s) + HNO_3 (aq)$$

Calculations Using the Chemical Equation:

1. Alka-Seltzer uses the reaction of sodium bicarbonate (NaHCO₃) with citric acid ($C_6H_8O_7$) to produce a CO_2 fizz.

$$3 \text{ NaHCO}_3(aq) + C_6H_8O_7(aq) \rightarrow 3CO_2(g) + 3 H_2O(l) + Na_3C_6H_5O_7(aq)$$

- a. If I have 100.0 mg of $Na_3C_6H_5O_7$, How many grams of citric acid ($C_6H_8O_7$) was present in the Alka-Seltzer tablet?
- b. How much CO₂ fizz is produced?
- c. How many milliliters of water are produced if the density of water is 0.98 g/mL?