TD Series N°1

Exercice 1 :

We have 0.34 moles of H2S. How many are there:

1) Grams of H2S,
2) Moles of H and moles of S,
3) Grams of H and grams of S,
4) Molecules of H2S,
5) Atoms of H and S. We are given ^1_1H et $^{32}_{16}S$

Exercice 2 :

Calculate the normality of phosphoric acid that contains:

1) 49 g of solute per 250 mL of solution.
2) 0,1 gram-equivalents of solute per 25 mL of solution
3) 3 moles of solute per 1500 cm3 of solution.
Data: H_3PO_4 Molar atomic mass in g.mol^{-1}: P = 31; O = 16; H = 1.

Exercice 3 :

    Commercial sulfuric acid is a liquid with a density of 1.84 at 98% (by mass) of pure H_2SO_4.
1) Write the equation for its chemical reaction in water.
2) Calculate the molarity and normality of this acid.
3) What respective volumes of this solution and water should be mixed to obtain 2 liters of H_2SO_4 solution à 3 N ?

Exercice 4 :

    We dissolve 159.54 g of copper sulfate CuSO4 in water and adjust the resulting solution to one liter. The density of the solution is 1.172 g/cm3. Calculate:
1) The mass percentage of $CuSO_4$ in this solution.
2) The mole fraction of each component.
3) La The molality of $CuSO_4$.
4) The molarity and normality of this solution.

$$\rho_{eau} = \frac{1g}{cm^3}; \ M_{CuSO_4} = 159,54 \ g/mol$$