Complete the following tasks

I.
5 g of pentahydrate of cupric sulfate was dissolved in water. The total volume of the solution was 100 ml.
Calculate

1. substance concentration of Cu^{2+} in the solution
2. % (w/v) of $CuSO_4$ in the solution

N.B.: Do not forget that the salt was hydrated

M(Cu) = 63.55 g/mol M(S) = 32.07 g/mol

II.
Hydrogen can be prepared by reaction of hydrochloric acid with zinc. How much zinc is necessary to produce 5 l of gaseous hydrogen at 25 °C and 101,325 kPa? How many ml of concentrated hydrochloric acid are necessary? (Concentrated hydrochloric acid is 35 % w/v, ρ = 1180 g/l).

M(Zn) = 65.41 g/mol M(Cl) = 35.45 g/mol

III.
How many ml of 10 % (w/v) barium nitrate are required for complete reaction with 10 ml of 10 % sodium sulfate?
How many grams of the product are formed?

M(Ba) = 137.33 g/mol M(N) = 14.00 g/mol M(Na) = 22.99 g/mol M(S) = 32.07 g/mol