Problem #1: Silicon

mass number	exact weight	percent abundance
28	27.976927	92.23
29	28.976495	4.67
30	29.973770	3.10

Find the average atomic mass.

Problem #2

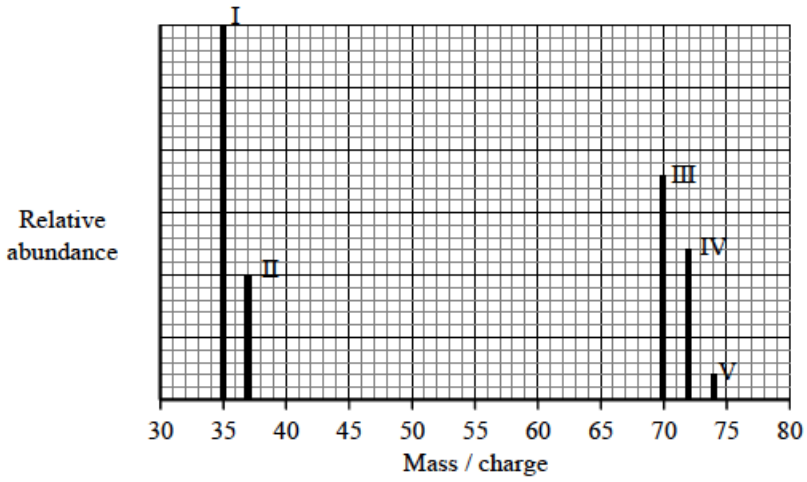
If 23.5 Liters of oxygen gas a 27 C and 790 mmHg is added to excess magnesium, how much product can be made?

Problem #3

If I have 23.5 g of Mg mixed with Oxygen at 0C and 760 mmHg, how many liters of oxygen will be consumed?

Problem #4

The following is a mass spec sample consisting of one element. Describe each peak.



Problem #5

If 4.5 grams of $NaCH_3COOH$ is added to 67 ml of 3.4 M HCl, how many grams of NaCl is produced?

Problem #6

The molar mass of nicotine is 162.1 g/mol. It contains 74.0 % carbon, 8.7 % hydrogen, and 17.3 % nitrogen. Determine nicotine's empirical formula and molecular formula.

Problem #7

A hydrate of magnesium sulfate has a mass of 13.52 g. This sample is heated until no water remains. The MgSO4 anhydrate has a mass of 6.60 g. Find the formula and name of the hydrate.

Problem #8

If there are 2.3 grams of water produced from a hydrocarbon combustion, how much hydrogen was in the original sample of hydrocarbon?

Problem #9

Below draw the dissolution of K_2SO_4

Problem #10

If a sample of gas with a density of 2.5 g/ml was held in a container at 750 mmHg and 25 C, what is the gas's molar mass?

Problem #11

What is the percent hydrogen in $C_6H_{12}O_6$?

Identify type and predict products for

$MgCl_2 + KOH \rightarrow$

$KCO_3 \rightarrow$