

Grade: 9

chemistry

**First Exercise (7 pts)**

**Isotopes**

Most of the elements in nature have 2 or more isotopes.

Some isotopes of certain elements emit radiations, these isotopes are called radioactive and they are used in medicine especially in the diagnosis and treatment of cancer.

The natural isotopes are sufficiently stable to enter in chemical combination at long period of time.

Also, it's possible to obtain synthetic isotopes, but they have too short life compared to the natural isotopes.

The following table represents the relative abundance in % of 2 isotopes of chlorine.

Isotope	Cl-35	Cl-37
Relative abundance in %	75	x

- 1- Pick up from the text a benefit of some isotopes.
- 2- Natural isotopes are more abundant than synthetic ones. Pick up from the paragraph the expression that justifies this statement.
- 3- Find the % of the relative abundance of Cl-37.
- 4- Transform the above table into a circular diagram.
- 5- Explain why the 2 isotopes of chlorine are placed in the same box in the periodic table.
- 6- Copy and complete the following table.

Isotope	Number of protons	Number of neutrons
Cl-35		
Cl-37		20

- 7- The 2 isotopes of chlorine have the same nuclear charge. Explain why.
- 8- Calculate the number of mole that corresponds to 3.5 g of the most abundant isotope of chlorine.

