

Isotopes.mp4

Isotopes

Isotopes (2).mp4

def: An element that has the same # of pt, but the n^o # will vary.

- Since elements have different number of neutrons, their atomic mass does not go up at a constant rate.
- All isotopes of the same element will have the same chemical properties (cause a pop with a lighted splint), but may have different physical properties (colour or texture).
- Unit is atomic mass unit (amu) use u.

IUPAC Periodic Table of the Elements

The image shows a standard periodic table with element symbols and names. The title 'IUPAC Periodic Table of the Elements' is centered at the top. The table is organized into groups and periods, with the lanthanide and actinide series shown as separate rows at the bottom.

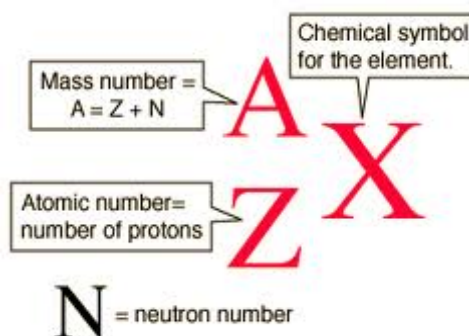
Representing models



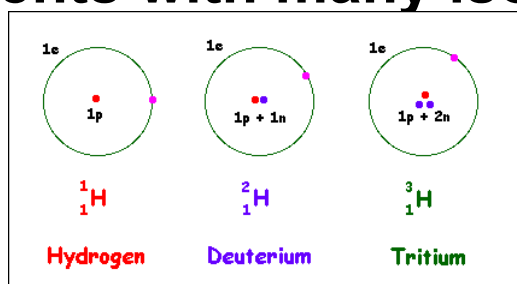
A = mass number

Z = Atomic number

E = element symbol



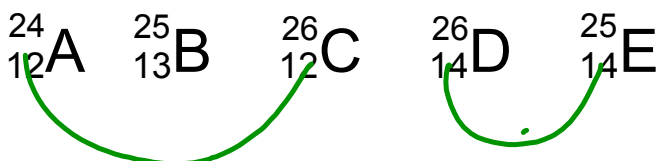
Elements with many isotopes



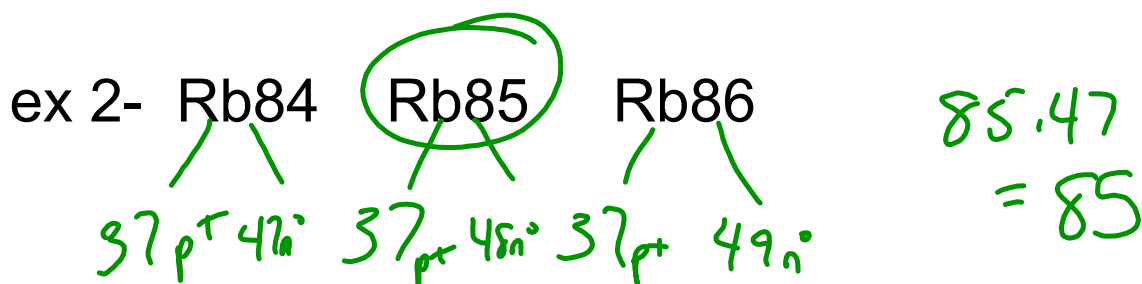
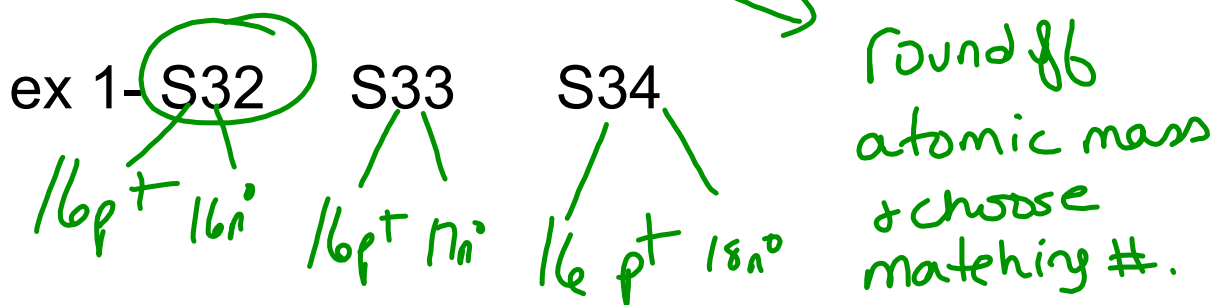
How do you know these are isotopes of the same element?

They all have same # of P^+

Group the letters together which represent the same element.



Calculating n° number and determining the most abundant form



Past exam questions

1. The atomic number of the element potassium (K) is 19 and its mass number is 40. Which combination of particles corresponds to the simplified atomic model of the potassium atom?

- A) 19 protons, 21 neutrons, 19 electrons
- B) 40 protons, 19 neutrons, 40 electrons
- C) 19 protons, 40 neutrons, 19 electrons
- D) 40 protons, 21 neutrons, 21 electrons

2. What general observation can be made regarding the atomic radius across a row or a period of the Periodic Table?

- A) It increases with increasing atomic number, Z .
- B) It decreases with increasing atomic number, Z .
- C) It remains constant with increasing atomic number, Z .
- D) It varies in an irregular fashion, with no relation to the atomic number.

3. Chlorine has two stable naturally occurring isotopes. They are identified by their atomic mass as follows: chlorine-35 which accounts for about 75% of all existing atoms and chlorine-34 which accounts for 24%. The relative atomic mass of chlorine is 35.45 amu.

Below are some statements regarding the element chlorine.

- 1-Chlorine-35 and chlorine -34 are radioactive isotopes of the same element.
- 2-The relative atomic mass of chlorine is the same as the atomic mass of chlorine.
- 3-The atomic masses of the two atoms are different because the number of neutrons in their nuclei is different.
- 4-Chlorine-34 has one less proton than chlorine-35.
- 5-When combined with hydrogen, the two atoms form the same substance, HCl.

Which of the above statements are true?

- A) 1 and 3
- B) 2 and 4
- C) 3 and 5
- D) 4 and 5

Attachments



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