

2. Complete the following table by filling in the missing information about isotopes. The first row is completed as an example.

Name of Isotope	Symbol	Mass Number	Number of Protons	Number of Neutrons
hydrogen-3	${}^3_1\text{H}$	3	1	2
scandium-49	${}^{49}_{21}\text{Sc}$	49	21	28
Cobalt - 60	${}^{60}_{27}\text{Co}$	60	27	23
nitrogen-15	${}^{15}_7\text{N}$	15	7	8
Uranium 238	${}^{238}_{92}\text{U}$	238	92	146
Iodine 129	${}^{129}_{53}\text{I}$	129	53	76
Barium-135	${}^{135}_{56}\text{Ba}$	135	56	79
Strontium -86	${}^{86}_{38}\text{Sr}$	86	38	48
Oxygen-18	${}^{18}_8\text{O}$	18	8	10
carbon-14	${}^{14}_6\text{C}$	14	6	8

3. Although oxygen-16 is the most common isotope of oxygen, oxygen-17 and oxygen-18 are also present. Despite the differences in the atomic structures of the three isotopes, there is no difference in how they form ionic or covalent compounds with atoms of other elements. Explain how this can be.

They only differ in the number of neutrons

They have the same electron configurations and only electrons are important for chemical reactions

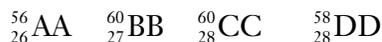
**Goal** • Use this page to show your understanding of isotopes.

Circle the letter of the best answer.

1. What do two isotopes of an element have?
  - A. the same number of electrons but a different number of protons
  - B. the same number of neutrons but a different number of protons
  - C. the same number of protons, electrons, and neutrons
  - D. the same number of protons but a different number of neutrons
2. What does a sodium-23 isotope contain?
  - A. 11 protons and 12 neutrons
  - B. 11 protons and 23 neutrons
  - C. 12 protons and 11 neutrons
  - D. 23 protons and 23 neutrons
3. Isotopes are two atoms of the same element that do which of the following?
  - A. become electrically charged
  - B. differ in mass but are chemically alike
  - C. give away electrons to become positively charged
  - D. have the same mass but different chemical properties
4. Which of the following describes the isotope  ${}^{40}_{20}\text{Ca}$ ?
  - A. 40 protons and 20 neutrons
  - B. 20 protons and 40 neutrons
  - C. 20 protons and 20 neutrons
  - D. 40 electrons and 20 neutrons

**Use the following information to answer the next two questions.**

The nuclear notations for four mystery elements are shown below.



5. How many subatomic particles does mystery element AA have?
  - A. 26 protons, 26 neutrons, and 26 electrons
  - B. 26 protons, 30 neutrons, and 26 electrons
  - C. 30 protons, 26 neutrons, and 30 electrons
  - D. 26 protons, 56 neutrons, and 30 electrons
6. Which mystery elements are isotopes of the same element?
  - A. AA and BB
  - B. BB and CC
  - C. CC and DD
  - D. AA and DD