

Exercise 2.14– Isotopes

Q214-01 A sample of gallium has a relative atomic mass of approximately 69.8. If the sample consists of two isotopes of masses 69.0 and 71.0 respectively, what is the approximate percentage of the lighter isotope in the sample?

- A. 80.0 %
 - B. 60.0 %
 - C. 40.0 %
 - D. 20.0 %
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Q214-02 Separation of the isotopes of uranium requires a physical method rather than a chemical method because

- A. it is too dangerous to mix other chemicals with uranium.
 - B. the isotopes are chemically the same element.
 - C. the isotopes differ in number of neutrons.
 - D. natural uranium contains only 0.7% U-235.
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Q214-03 There are two stable isotopes of carbon. They differ with respect to

- A. atomic mass
 - B. number of protons
 - C. atomic number
 - D. electron configuration
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Q214-04 The average atomic weight of elemental copper is reported as 63.5. Copper consists of two stable isotopes, ^{63}Cu and ^{65}Cu . Approximately what percent of naturally occurring copper is the ^{63}Cu isotope?

- A. 30
 - B. 50
 - C. 70
 - D. 90
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Q214-05 Which symbols represent atoms that are isotopes?

- A. C-14 and N-14
 - B. O-16 and O-18
 - C. I-131 and Te-131
 - D. Rn-222 and Ra-222
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Q214-06 For an isotope of argon ($Z = 18$), the mass number is 40. The number of neutrons in this isotope is:

- A. 18
 - B. 40
 - C. 22
 - D. the same as in any other isotope of argon
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Q214-07 Boron has two isotopes, ^{10}B and ^{11}B , with relative abundances of 20% and 80% respectively. Which of the following is the relative atomic mass of boron?

- A. 10.5
 - B. 11.0
 - C. 10.8
 - D. 10.2
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Q214-08 Which of the following is different for two isotopes of the same element?

- A. The atomic number
 - B. The number of electrons
 - C. The mass number
 - D. The reactivity
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Q214-09 Neon occurs as two isotopes of mass numbers 20 and 22. Its relative atomic mass is 20.2. What is the percentage of ^{20}Ne in naturally occurring neon?

- A. 10
 - B. 20
 - C. 80
 - D. 90
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Q214-10 Hydrogen has three isotopes, protium with no neutrons, deuterium with one neutron and tritium with two neutrons. In a sample trapped in a meteorite, they are found to occur in the ratio 10: 1: 1. What is the relative atomic mass of the hydrogen in the sample?

- A. 1.00
 - B. 1.25
 - C. 1.50
 - D. 2.00
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