

3. How many neutrons are in each atom?

- a. $^{23}_{11}\text{Na}$ c. $^{81}_{35}\text{Br}$
 b. $^{238}_{92}\text{U}$ d. $^{19}_{9}\text{F}$

4. The two most abundant isotopes of carbon are carbon-12 (mass = 12.00 amu) and carbon-13 (mass = 13.00 amu). Their relative abundances are 98.9% and 1.10%, respectively. Calculate the atomic mass of carbon.

5. Element X has two isotopes: X-100 and X-104. If the atomic mass of X is 101 amu, what is the relative abundance of each isotope in nature?

SECTION 4.3 STRUCTURE OF THE NUCLEAR ATOM

Part C Matching

Column A

Column B

1. A solid-35 atom contains 16 protons, 16 neutrons, and 16 electrons. What is the mass in grams of a solid-35 atom?
2. The mass of a neutron is 1.67×10^{-24} g. Approximately what number of neutrons would equal a mass of one gram?
3. Which experiment is consistent with the results of Rutherford's gold foil experiment?
 - a. All atoms have a positive charge.
 - b. Atoms are mostly empty space.
 - c. The nucleus of an atom contains protons and electrons.
 - d. Mass is spread uniformly throughout an atom.

SECTION 4.3 DISTINGUISHING BETWEEN ATOMS

1. How many protons, neutrons, and electrons does each of the following have?
 - a. boron
 - b. sulfur
 - c. neon
 - d. lithium
2. Complete the table for the following elements.

Element	Number of Protons	Number of Electrons	Number of Neutrons	Atomic Number	Mass Number
Manganese	25				
Sodium					
Bromine					
Yttrium					
Arsenic					
Antimony					