

Name \_\_\_\_\_

## Chapter 10 Atomic Number, Mass Number, Isotopes

You may use your periodic table on p. 261.

An answer without units will be counted wrong!

**An atom's atomic number tells you how many protons it contains.**  
(The top number in each box of the periodic table.)

1. How many protons and electrons are in the following atoms?
  - a. O –
  - b. C –
  - c. Al –
  - d. Cu –
  - e. Mg –
2. An atom has an atomic number of 82. How many protons and electrons does it have? What is its symbol?
3. An atom has an atomic number of 19. How many protons and electrons does it have? What is its symbol?

**An atom's mass number tells you the total number  
of neutrons and protons it contains.**

4. List the number of protons, electrons, and neutrons for each of the following atoms:

a.  $^{40}\text{Ar}$  –

b.  $^{37}\text{Cl}$  –

c.  $^{90}\text{Zr}$  –

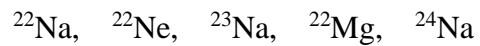
d.  $^{202}\text{Hg}$  –

e.  $^{58}\text{Ni}$  –

5. List the number of protons, electrons, and neutrons for each of the following atoms:
- a. Sodium (Na) with a mass number of 23
  
  - b. Iron (Fe) with a mass number of 55
  
  - c. Uranium (U) with a mass number of 238
  
  - d. Nickel (Ni) with a mass number of 59
  
  - e. Cadmium (Cd) with a mass number of 112

**Isotopes – atoms with the same number of protons  
but different numbers of neutrons.**

6. Which of the following atoms are isotopes?



7. Which of the following atoms is an isotope of carbon-13?

- a. an atom with three protons, three electrons, and ten neutrons
- b. an atom with six protons, six electrons, and six neutrons
- c. an atom with twelve protons, twelve electrons, and one neutron
- d. an atom with six protons, six electrons, and eight neutrons

8. Which of the following atoms are isotopes?

