

Masses Of Atoms (p. 512 – 515)

I. Atomic Mass

1. Identify the masses of each subatomic particle.

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Proton = 1.6726×10^{-24}

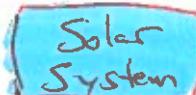
Neutron = 1.6749×10^{-24}

Electron = 9.1093×10^{-31}

2. Circle the letter of the expression that accurately compares masses of subatomic particles.

- a. mass of 1 neutron = mass of 1 proton
- b. mass of 2,000 neutrons = mass of 1 proton
- c. mass of 1 electron = mass of 1 proton
- d. mass of 1 neutron = mass of 1 electron

mass of 2,000 electrons = 1 proton



3. An electron's mass is so small that it is negligible when determining atomic mass.

Circle One : True False

4. Define the term atomic mass unit (amu).

Atomic Mass Unit – one-twelfth the mass of a carbon atom
 $1 \text{ amu} = 1 \text{ proton or } 1 \text{ neutron}$

5. Define the term atomic number.

Atomic Number – the number of protons in an atom

6. Two atoms of the same element can have same different numbers of protons.

Circle One : True False

7. Circle the letters that identify quantities that are equal to an element's atomic number.

- a. number of nuclei
- b. number of protons
- c. number of neutrons
- d. number of electrons

→ (if neutral is assumed)

Do
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8. Define the term mass number.

Mass Number – sum of the number of protons + neutrons
in the nucleus of an atom

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9. Two different elements can have the same atomic number.

Circle One : True False

10. Carbon with the mass number of 12 (Carbon-12) is the most common form of carbon.

Circle One : True False

II. Isotopes

1. Define the term isotopes.

Isotopes - atoms of the same element that have different numbers of neutrons

2. Atoms of a specific element always have the same number of neutrons.

Circle One : True False (Neon-20, Neon-21, Neon-22)

3. Every atom of a given element has the same number of protons & electrons.

4. Every atom of a given element does not have the same number of neutrons.

5. How do you identify each isotope?

Name of element followed by mass number

6. All oxygen atoms have 8 protons. Circle the letter of the number of neutrons in an atom of oxygen-18.

- a. 8
- b. 9
- c. 10
- d. 18

7. Define the term average atomic mass.

Average Atomic Mass - weighted-average mass of the mixture of its isotopes

8. Complete the following table.

Isotope	Boron-10	Boron-11	Magnesium-26
Atomic Number	5	5	12
Mass Number	10	11	26
# of Protons	5	5	12
# of Neutrons	5	6	14
# of Electrons	5	5	12

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