

Atomic Mass, Atomic Number and Isotopes

Name - _____

1.) How many protons are in the nucleus of each of the following?

a.) Be

b.) U

c.) Mn

2.) How many electrons are there in a neutral atom of each of the following?

a.) C

b.) Fe

c.) Ar

3.) How many electrons are there in each of the following atoms?

a.) Na^+

c.) V^{3+}

e.) Cl^-

g.) Sb^{3-}

i.) H^-

b.) Mg^{2+}

d.) O^{2-}

f.) Al^{3+}

h.) Fe^{2+}

j.) As^{3+}

4.) What is the ion produced when:

a.) two electrons are added to S?

e.) an electron is added to Cr^{3+} ?

b.) two electrons are removed from Ca?

f.) two electrons are removed from Mn^{2+} ?

c.) an electron is added to Cl?

g.) an electron is removed from V^{4+} ?

d.) three electrons are removed from Al?

h.) two electrons are added to Sb^- ?

5.) What is the charge on the nucleus of each of the following?

a.) Mg

b.) Ne

c.) K^+

d.) S^{2-}

6.) The following mixtures of isotopes are found in nature. Calculate the average mass of each mixture.

a.) $^{69}\text{Ga} = 60.0\%$, $^{71}\text{Ga} = 40.0\%$

b.) $^{107}\text{Ag} = 51.8\%$, $^{109}\text{Ag} = 48.2\%$

c.) $^{70}\text{Ge} = 20.5\%$, $^{72}\text{Ge} = 27.4\%$, $^{73}\text{Ge} = 7.8\%$, $^{74}\text{Ge} = 36.5\%$, $^{76}\text{Ge} = 7.8\%$

d.) $^{64}\text{Zn} = 48.9\%$, $^{66}\text{Zn} = 27.8\%$, $^{67}\text{Zn} = 4.1\%$, $^{68}\text{Zn} = 18.6\%$, $^{70}\text{Zn} = 0.6\%$