

Isotope Notation

1. Uranium-235 and uranium-238 are considered isotopes of one another. How are uranium-235 similar, and how are they different?

U-235 and U-238 have the same #'s of protons (92)

U-235 has $235 - 92 = 143$ neutrons | U-238 has $238 - 92 = 146$ neutrons

2. Define isotope:

atoms with the same number of ~~electrons~~ protons but different numbers of neutrons

3. The number of protons in an atom is known as the atomic number of that atom.

4. The number of protons determines the name of the atom.

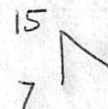
5. The mass number of an atom is the number of protons plus the number of neutrons in the nucleus of the atom.

6. The isotope notation for nitrogen-15 is as follows:

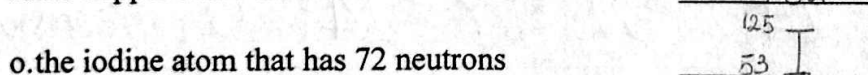
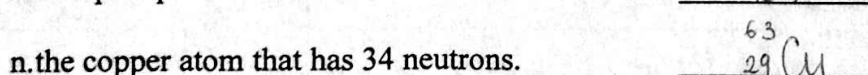
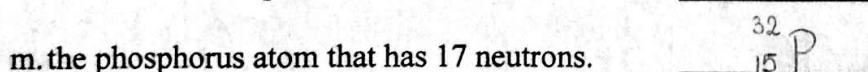
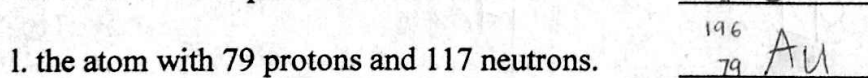
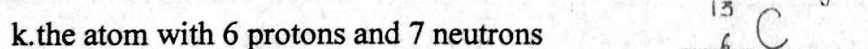
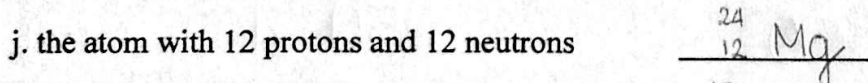
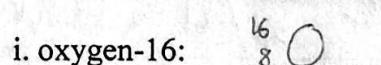
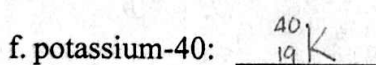
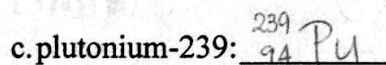
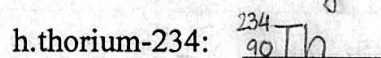
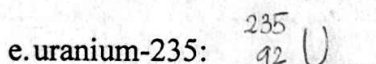
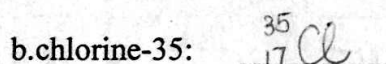
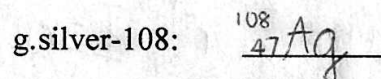
a. The number 15 is the mass number.

b. The number 7 is the atomic number.

c. How many neutrons does nitrogen-15 have? $15 - 7 = 8$



7. Write the following in isotope notation:



Isotope Notation

Complete the table. Recall that A = mass number, Z = atomic number, and ions have charge!

Name	${}^A_Z\text{Sym}^{+/-}$	Atom or ion?	Atomic Number	Mass Number	# of n°	# of p^+	# of e^-	Metal, non-metal, or metalloid?
Magnesium-24	${}^{24}_{12}\text{Mg}$	Atom	12	24	12	12	12	Metal
Silicon-30	${}^{30}_{14}\text{Si}$	Atom	14	30	16	14	14	Metalloid
Palladium-108	${}^{108}_{46}\text{Pd}$	Atom	46	108	62	46	46	Metal
Iodine-131	${}^{131}_{53}\text{I}$	Atom	53	131	78	53	53	nonmetal
Manganese-55	${}^{55}_{25}\text{Mn}$	Atom	25	55	30	25	25	metal
Sulfide	${}^{35}_{16}\text{S}^{2-}$	Ion	16	35	19	16	18	nonmetal
Cadmium	${}^{112}_{48}\text{Cd}^{2+}$	Ion	48	112	64	48	46	metal
Strontium	${}^{88}_{38}\text{Sr}^{2+}$	Ion	38	88	50	38	36	metal
astanide	${}^{210}_{85}\text{At}^-$	Ion	85	210	125	85	86	metalloid
Tin	${}^{119}_{50}\text{Sn}^{4+}$	Ion	50	119	69	50	46	metal
Plutonium	${}^{242}_{94}\text{Pu}^{5+}$	Ion	94	242	148	94	89	metal
Barium	${}^{136}_{56}\text{Ba}$	Atom	56	136	80	56	56	metal
Chromium	${}^{52}_{24}\text{Cr}^{2-}$	Ion	24	52	28	24	26	metal