

Exercise 3.3a

Isotopic Formulas

Name: _____

Date: _____ Per: _____

Atoms of an element are not necessarily identical to one another. While atoms of a specific element will always have a specific number of protons (which give the element its atomic number), they may vary in the number of electrons or number of neutrons they possess.

- When atoms of a particular element differ in the number of electrons they have (i.e., **ions**), it causes them to have different electrical charges (which are determined by comparing negative electrons to positive protons).
- When atoms of particular element differ in the number of neutrons they have (i.e., **isotopes**), it causes them to have different masses and different nuclear stability.

DIRECTIONS: Complete the following table.

Atomic Structure	Protons (p^+)	Neutrons (n^o)	Electrons (e^-)
Location in Atom			
Charge			
Mass (u)			

In order to show the exact makeup of a particular atom a complete atomic symbol may be written to describe its composition.

Mass Number
 (= protons + neutrons)

Atomic Symbol

Electrical Charge
 (= protons - electrons)

Protons
 (same as atomic number)

$^{127}_{53}\text{I}^{-1}$

Neutrons
 (not typically shown)

DIRECTIONS: Complete the following table using the information provided. Unless otherwise indicated, assume the atom is neutral.

Atom/Ion	Mass Number	Protons (p^+)	Neutrons (n^o)	Electrons (e^-)	Complete Symbol
Ca^{2+}			20		
Cl^-			18		
	14	6		2	
S^{2-}			16		
Zn^{2+}	65				
	10	5		2	
I^-	127				
H^-	3				
Fe^{3+}			30		
	14		7		
Na^+	23				
	2	1		0	
Kr			48		
H^+	1				