

Honors Chemistry: Homework Set 2-3

1. Why are atoms considered the basic building blocks of matter even though smaller particles, such as proton and electrons, exist?
2. What distinguishes the atoms of one element from the atoms of another?
3. Compose a paragraph in which you compare the three subatomic particles in terms of location in the atom, mass, and relative charge.
4. Nuclear forces are said to hold the protons and neutrons together in the nucleus. What is it about the composition of the nucleus that requires the concept of nuclear forces?
5. Write the symbol notation for an atom that contains 27 protons, 32 neutrons, and 27 electrons.
6. Complete the table for the following elements.

Element	Number of Protons	Number of Electrons	Number of Neutrons	Atomic Number	Mass Number
Manganese	25		30		
Sodium		11	12		
Bromine	35		45		
Yttrium				39	89
Arsenic		33			75
Actinium					227

7. Use a periodic table to complete the following chart:

Element	Symbol	Atomic number	Mass number
Europium-151			
	$^{109}_{47}\text{Ag}$		
Tellurium-128			

8. How many protons, neutrons, and electrons are contained in each of the following atoms?

(a) 50  
23 V

(b) 208  
83 Bi

(c) 99  
43 Tc

9. Fill in the gaps in the table below.

Symbol Notation	$^{84}_{36}\text{Kr}$		
Protons		25	82
Neutrons		30	
Electrons			
Mass Number			207

10. Indicate the number of protons, neutrons, and electrons in each of the following atoms.

- (a) phosphorus-32
- (b) cobalt-60
- (c) Iodine-131