**+WS 2.1 Protons, Neutrons, Electrons**

1. Fill in the table below with the correct numbers (first one is done as an example)

| symbol | name | atomic number | mass number | charge | # of particles in nucleus | # of protons | # of neutrons | # of electrons |
|---|---|---|---|---|---|---|---|---|
| $^{23}_{11}Na$ | *sodium-23* | *11* | *23* | *0* | *23* | *11* | *12* | *11* |
| $^{60}_{29}Cu$ | | | | | | | | |
| | gold - 198 | | | | | | | |
| $^{39}_{19}K$ | | | | | | | | |
| $^{41}_{19}K$ | | | | | | | | |
| $^{41}_{19}K^{1+}$ | | | | | | | | |
| | | 12 | 25 | 0 | | | | |
| | | 36 | | | | | 42 | 36 |
| | | | | 1- | 35 | | | 18 |
| | | | | | | 7 | 7 | 10 |
| | | | | 1+ | 1 | | | |
| | | | | | 238 | 92 | | 92 |
| $^{14}C$ | | | | | | | | |

2. How many n's are there in an atom of P-33?_____ How many p's in an $Fe\text{-}58^{3+}$ ion? _____
3. How many total particles (p, n & e's) are in an O-16 atom? _____ In a $F\text{-}19^{1-}$ ion? _____
4. All chromium particles must have the same number of (p, n or e?) _____
5. (p, n, or e?) The # of _____ determines what element a particle is, the # of _____ determines what isotope of that element, and the # of _____ determines the particle's overall charge.
6. An atom has a mass # of 62 and has 33 neutrons; what element is this atom?
7. A particle has 13 p, 14 n, and 10 e; what is its mass #? _____ What is the particle's charge? _____ What element is it? _____
8. A particle has 35 p, 45 n, and 36 e; what is its mass #? _____ What is the particle's charge? _____ What element is it? _____
9. If a mercury-198 atom were to lose a proton, it would become a _____.
10. If two lithium-6 atoms fused (joined together), it would create a _____.
11. If a thorium-234 atom absorbed a neutron, it would become a _____.
12. If a uranium-238 atom were split into two equal halves, it would make two _____.

Ans (IRO+2; no names for #1): 0 0 0 0 0 0 0 0 0 0 3- 3+ 1- 1+ 1 1 1 6 6 6 7 8 12 12 13 14 14 14 14 17 17 18 18 18 19 19 19 19 19 19 19 19 20 22 22 24 25 26 27 27 29 29 29 29 31 35 36 39 39 41 41 41 41 60 60 78 78 79 79 79 80 90 92 119 146 198 198 238

p p n e $^{1}_{1}H^{1+}$ $^{12}_{6}C$ $^{14}_{7}N^{3-}$ $^{25}_{12}Mg$ Al $^{35}_{17}Cl^{1-}$ Cu $^{78}_{36}Kr$ $^{119}_{46}Pd$ Br $^{197}_{79}Au$ $^{198}_{79}Au$ $^{235}_{90}Th$ $^{238}_{92}U$