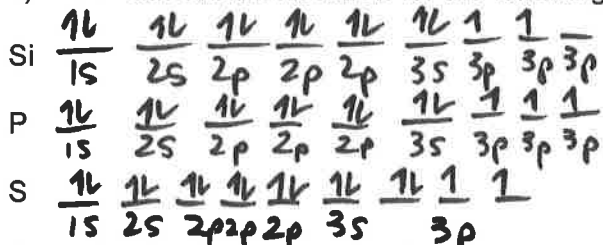


1) Draw out orbital notation for the following elements, being sure to follow Hund's rule:

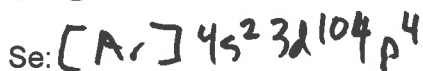
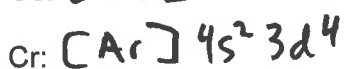


2) Define the Aufbau Principle and state an example of when it is no longer true.

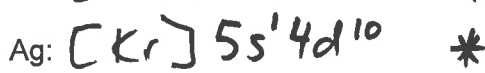
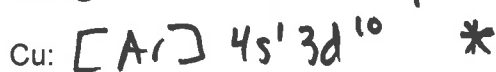
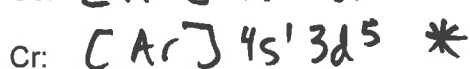
- electrons fill lowest energy orbitals first
- may not be true if electron elevated to d orbital to achieve a half filled sublevel or a full sublevel

3) Write noble gas configurations for the following elements. When done, look at your new PT to see which ones are exceptions to the filling order and put the correct configuration to the right.

Expected configuration



Correct configuration

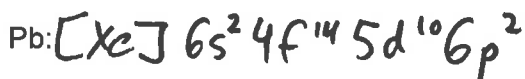
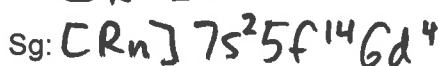


Aufbau's

4) Why do electron configurations sometimes break ~~Aufbau's~~ rule?

- lower energies can be achieved by creating a half filled sublevel or a full d sublevel

5) Write out noble gas configurations for these larger elements. When done check for exceptions!



More on Back!

IONS! Write electron configurations or noble gas configurations for each of these ions. Go back to the last noble gas to start!

Formula:	Name:	# electrons	configuration
$F^{-1}$	fluoride	10	$[He] 2s^2 2p^6$
$Na^{+1}$	sodium ion	10	$[He] 2s^2 2p^6$
$S^{-2}$	sulfide	18	$[Ne] 3s^2 3p^6$
$N^{-3}$	nitride	10	$[He] 2s^2 2p^6$
$Mg^{+2}$	magnesium ion	10	$[He] 2s^2 2p^6$
$Rb^{+1}$	rubidium ion	36	$[Ar] 4s^2 3d^{10} 4p^6$
$P^{-3}$	phosphide	18	$[Ne] 3s^2 3p^6$
$Mn^{+2}$	manganese ion	23	$[Ar] 3d^5$ (loses $4s^2$ )
$Zn^{+2}$	zinc ion	28	$[Ar] 3d^{10}$ (loses $4s^2$ )
$Cr^{+6}$ (dangerous)	chromium( <del>VI</del> ) ion (VI)	18	$[Ar] 3s^2 3p^6$ (loses 3d and 4s!)