STE Pretest 1.3 for 2015

1. What atom of period 2 has the largest atomic radius?

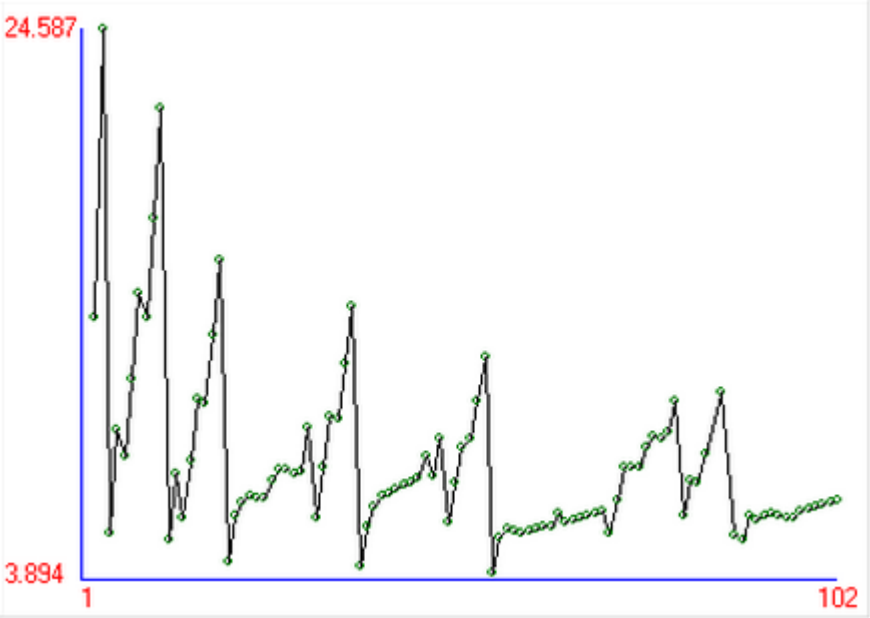
Li

2. What's the difference between ionization energy and electronegativity?

Electronegativity, which cannot be measured for noble gases that don't bond, is the tendency for an atom to pull electrons towards itself while bonded to something else. But ionization energy can be measured for an unbounded gaseous atom.

3. If the difference between electronegativities of two atoms is small, will they react to form a covalent compound? Or an ionic compound?

Covalent

4. 

Which periodic trend is shown above, if each peak corresponds to a noble gas?

Ionization energy

5. What makes K a bigger atom than sodium?

The extra shell

6. Name the following compounds:

a. OF_2__oxygen difluoride_____
b. KBr____potassiumm bromide_____
c. Ca_3P_2_____calcium phosphide_____
d. $BeCO_3$_____beryllium carbonate_____
e. $MgSO_4$___magnesium sulfate_____

f. CuS_____copper sulfide_____

g. OsO_4____osmium oxide_____

h. NH_4I_____ammonium iodide_____

i. CF_4____carbon tetrafluoride_____

j. $Fe(HCO_3)_2$____iron hydrogen carbonate___

7. Write formulae for the following ionic compounds.(Show work when necessary☹)

a)	sodium hydride	Na^+ H^-	**ans**	NaH
b)	magnesium nitrate	Mg^{+2} NO_3^-	**ans**	**$Mg(NO_3)_2$**
c)	calcium carbonate	Ca^{+2} CO_3^{-2}	**ans**	**$CaCO_3$**
e)	ammonium chlorate	NH_4^+ ClO_3^-	**ans**	NH_4ClO_3
f)	diphosphorus pentaselenide		**ans**	**P_2Se_5**

8. Match the following descriptions with the correct polyatomic ion.
(It has to be one of the eight in your notes. Include charge!)

a. Found in *guano* and other natural fertilizer, it is needed by plants for the production of amino acids (hint: these contain nitrogen). ___NO_3^-_____

b. It'll either knock you out or wake you up with its ammonia-like smell_NH_4^+

c. Bakers use this to generate carbon dioxide to help puff up their goodies HCO_3^-

d. Get this Cl-containing stuff on your jeans and they'll fade in a hurry! ClO_3^-

9. What is the charge of CrO_4 in $CaCrO_4$?

Since Ca = + 2,
2 + x = 0
x = -2

10. There are three isotopes of Q: 312 , 316 and 317. The most abundant one is 312. 75% of Q is ^{312}Q. If the atomic mass of Q is 313.16, what is the percentage abundance of ^{316} Q?

312*.75 + x*316 + (0.25 - x)*317 = 313.16

x= 0.09

9% ^{316} Q

^{24}Mg 78.99%

^{25}Mg 10.00%

^{26}Mg 11.01%

11. Use the above abundances to find the atomic mass of magnesium.

0.7899(24) + 0.10(25)+ 0.1101(26) = 24.3