

Part 2: Answer the questions below

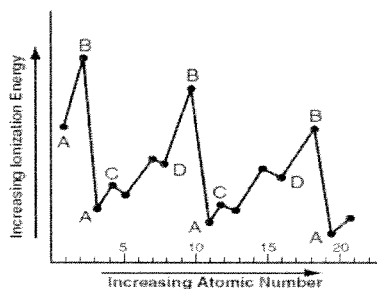
13. How many electrons does Mg^{2+} have? 10
14. How many protons does N^{-3} have? 7 * protons = atomic #
15. What will be the ion symbol (formula), if the ion has 19 protons and 18 electrons? K^{1+}
16. How many electrons does an ion have if it has 16 protons and a -2 charge? 18
17. If an ion has 53 protons and 54 electrons, what will be its charge? $1-$
18. Given the formula $X(NO_3)_3$, what is the charge on ion X? Be sure to include the sign (+ or -). $3+$ $X^{3+} (NO_3^-)_3$
19. How many electrons does the Copper ion have in the ionic compound Cu_2SO_4 ? 28 $Cu^{1+} SO_4^{2-}$

20. Circle the atom **in each pair** that has the largest atomic radius.

- a) Al B b) Br Cl c) Na Al d) O F

21. Ionization energy is

the energy needed to remove an atom's e^-



22. Which letter on the chart indicates the noble gases or the inert elements B inert = unreactive

** Noble gases have very high ionization energy*

23. Circle the atom **in each pair** that has the greater ionization energy.

- a) Li Be b) Cl Si c) Ca Ba d) P Ar

24. Electronegativity is: *the ability to attract other atoms' e^- in a bond*

25. Circle the atom **in each pair** that has the greater electronegativity.

- a) Ca Ga b) Br As c) Ba Sr d) O S

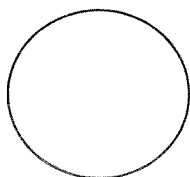
26. Arrange the following in order of increasing ionic size.

a. I, Br, Cl Cl^- , Br^- , I^-

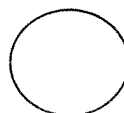
b. P^{3-} , S^{2-} , Cl Cl^- , S^{2-} , P^{3-}

c. Ba^{2+} , Sr^{2+} , Ca^{2+} Ca^{2+} , Sr^{2+} , Ba^{2+}

27. Label the atoms below as either Sodium or as Sodium Ion (Na^{1+}):

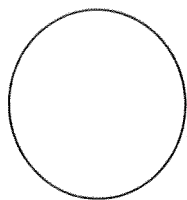


a. sodium (Na)

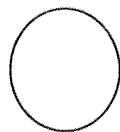


b. sodium ion (Na^{1+})

28. Label the atoms below as either Oxygen or as Oxygen Ion(O^{2-}):



a. oxygen ion (O^{2-})



b. oxygen atom (o)

Part 3: Name the following:

29. P_2O_5

diphosphorus pentoxide

32. VO_2

vanadium (IV) oxide

30. $Zn(NO_3)_2$

zinc nitrate

33. PbS

lead (II) sulfide

31. IO_2

iodine dioxide

Part 4: Determine the formula for the following:

34. disilicon hexabromide



29. silver acetate



35. copper (I) phosphate



30. calcium sulfate



36. gallium oxide



Part 5: Draw the Lewis structure and determine the molecular geometry for each.

	Lewis structure		Lewis structure
37. PCl_3	$ \begin{array}{c} \text{:}\ddot{\text{Cl}}\text{:} - \ddot{\text{P}} - \ddot{\text{Cl}}\text{:} \\ \\ \text{:}\ddot{\text{Cl}}\text{:} \end{array} $	39. BCl_3	$ \begin{array}{c} \text{:}\ddot{\text{Cl}}\text{:} - \ddot{\text{B}} - \ddot{\text{Cl}}\text{:} \\ \\ \text{:}\ddot{\text{Cl}}\text{:} \end{array} $
38. CCl_4	$ \begin{array}{c} \text{:}\ddot{\text{Cl}}\text{:} \\ \\ \text{:}\ddot{\text{Cl}} - \text{C} - \ddot{\text{Cl}}\text{:} \\ \\ \text{:}\ddot{\text{Cl}}\text{:} \end{array} $	40. SCl_2	$ \begin{array}{c} \text{:}\ddot{\text{Cl}}\text{:} - \ddot{\text{S}} - \ddot{\text{Cl}}\text{:} \end{array} $

Part 6: Determine if the following bonds are polar or nonpolar

41. H-O
2.1 3.5

$$\Delta EN = 3.5 - 2.1 = 1.4$$

polar covalent

42. N-Cl
3.0 3.0

$$\Delta EN = 3 - 3 = 0$$

nonpolar covalent

43. P-Cl
2.1 3.0

$$\Delta EN = 3 - 2.1 = 0.9$$

polar covalent