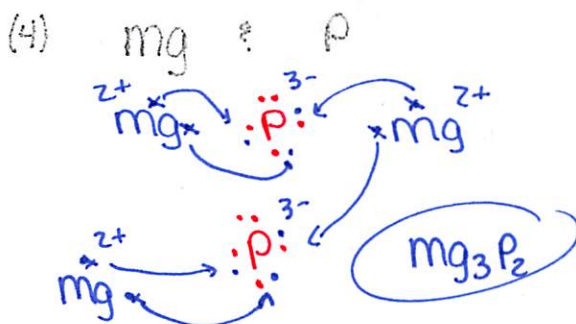
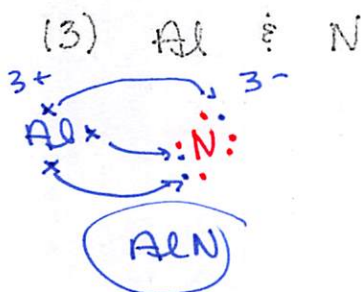
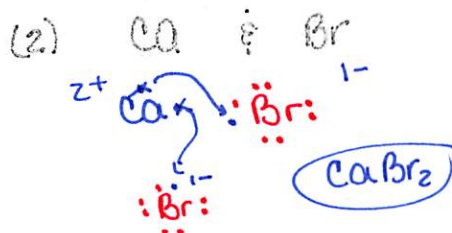
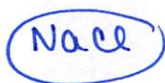
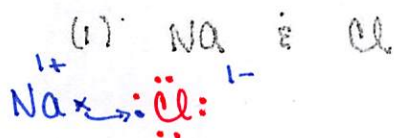


Bonding & Nomenclature Review

1) Ionic Bonding

- (A) What 2 types of elements form ionic bonds and how?
metal + nonmetal by transferring e^- from metal to nonmetal
- (B) Draw e^- dot diagrams to show the formation of an ionic bond between these atoms below. Don't forget to include the charges formed.



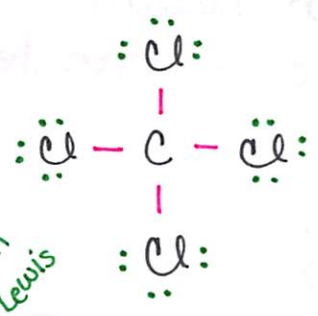
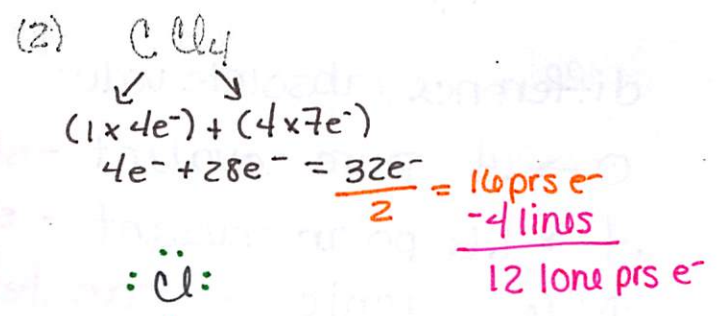
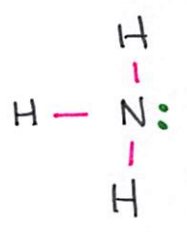
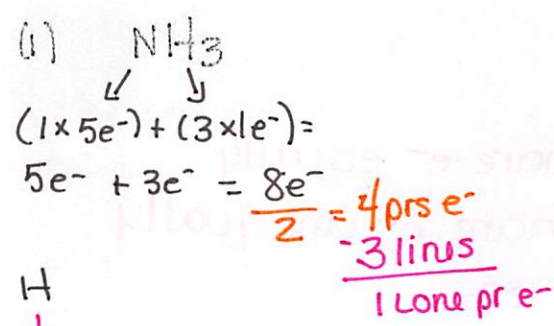
- (C) List at least 3 properties of ionic compounds
- 1) high melting & boiling points
 - 2) solid crystals @ room temperature
 - 3) conductor when dissolved in water or molten

2) Covalent Bonding

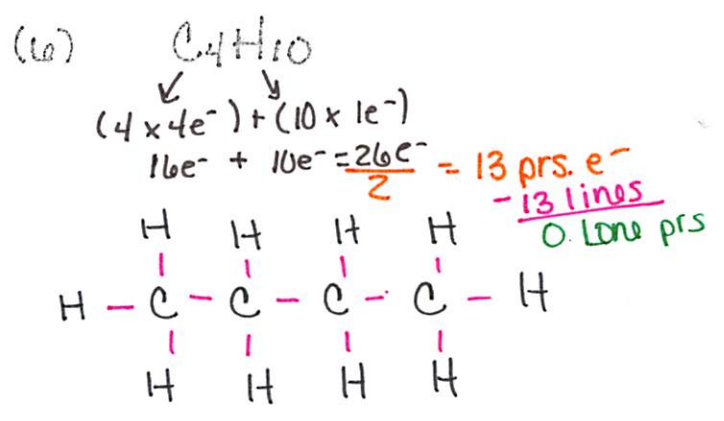
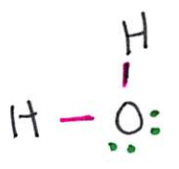
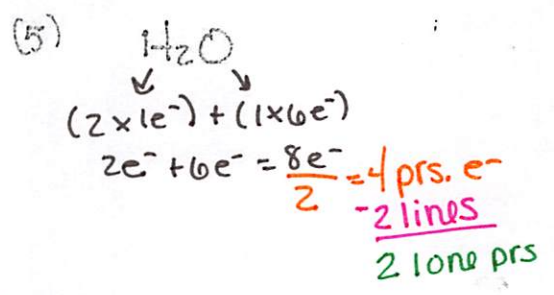
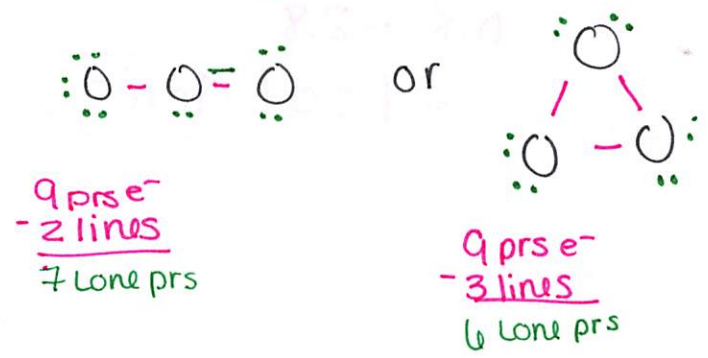
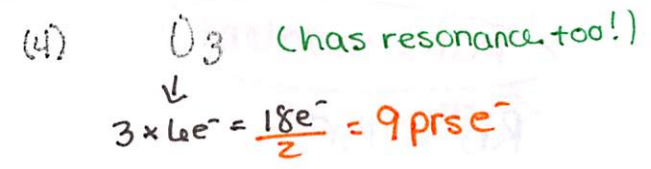
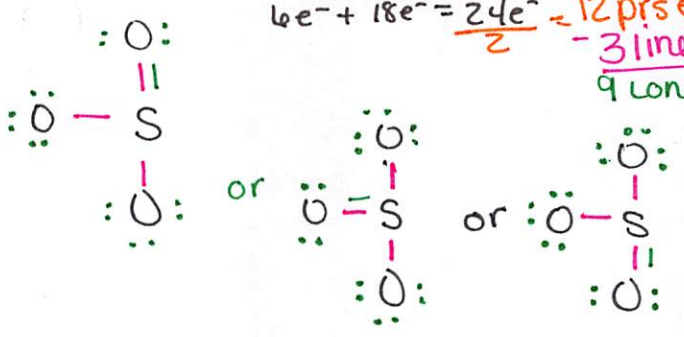
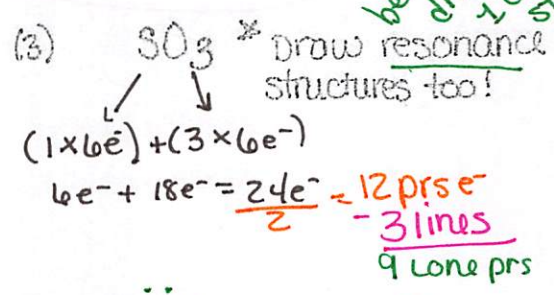
- (A) what types of elements form covalent bonds and how?

2 nonmetals share e^-

(b) Draw Lewis structures to show the formation of a covalent bond in these molecules.



being able to draw more than 1 correct Lewis structure



- (c) List at least 3 properties of covalent compounds.
- 1) low melting and boiling points
 - 2) solids, liquids, or gases @ room temp.
 - 3) nonconductors

Using electronegativity difference to show bond type:

difference (absolute value)

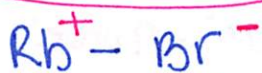
- 0 → .4 pure covalent - share e⁻ equally
- .4 → 1.6 polar covalent - share e⁻ unequally
- ↑ 1.6 ionic - transfer e⁻



$$3.0 - 3.0$$

= 0 not polar

pure covalent



$$0.8 - 2.8$$

= |2.0| ionic



$$2.1 - 3.0$$

= |0.9| polar covalent

3.) metallic Bonding

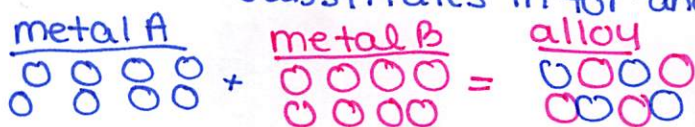
(A) what types of elements form metallic bonds?
2. metals

(B) what is meant by a "sea of electrons"?
 + metal cations floating in a movable mass of e^-

(C) what is an alloy and give 2 examples. Ex) bronze, brass, 18carat gold, steel
 solution made of 2 metals

(D) what is a substitutional alloy? what is an interstitial alloy?

The 2 metals have atoms of similar size, so one metal substitutes in for another



One metal has atoms that are much smaller than the other metal, they fit in the spaces between the larger metal atoms.



4) Nomenclature

(A) Determine if the following compounds are type I, type II, type III, a hydrocarbon, binary acid, or oxyacid

- | | |
|--|--|
| I (1) $Rb_2 C_2O_4$ rubidium oxalate | (11) perchloric acid OA $HClO_4$ |
| III (2) AsO_3 arsenic trioxide | (12) hydrogen peroxide I H_2O_2 |
| BA (3) HI hydriodic acid | (13) lead (IV) sulfite II $Pb_2(SO_3)_4 \Rightarrow Pb(SO_3)_2$ |
| HC (4) C_6H_{12} hexene | (14) nitrous acid OA $H^+ NO_2^- = HNO_2$ |
| II (5) $U F_6$ uranium (VI) fluoride | (15) silicon dioxide III SiO_2 |
| OA (6) $HC_2H_3O_2$ acetic acid | (16) nickel (III) sulfide II NiS^{2-} |
| I (7) $Ba(HSO_4)_2$ barium hydrogen sulfate | (17) gallium phosphate I $GaPO_4$ |
| BA (8) H_2S hydrosulfuric acid | (18) lithium permanganate I $Li^+ MnO_4^-$ |
| III (9) CS_2 carbon disulfide | (19) hydrofluoric acid BA $H^+ F^-$ |
| II (10) $Au_2(Cr_2O_7)_3$ gold (III) dichromate | (20) nitrogen trichloride III NO_3 |

(B) From 4(A) above, write the name for #1-10 and write the formula for #11-20.

See above