

Homework Questions?

$$\begin{array}{l}
 (\text{NH}_4)_2\text{SO}_4 \\
 2(14.0\text{g/mol}) + 8(1.01\text{g/mol}) + 32.1\text{g/mol} + \\
 \qquad\qquad\qquad 4(16.0\text{g/mol}) \\
 3.4 \times 10^{-7} \text{ g SiO}_2 \\
 28.1\text{g/mol} + 2(16.0\text{g/mol}) \\
 \qquad\qquad\qquad 60.1\text{g/mol} \\
 \hline
 3.4 \times 10^{-7} \text{ g} \quad \left| \begin{array}{l} \text{mol} \\ 60.1\text{g} \end{array} \right. = 5.7 \times 10^{-9} \text{ mol}
 \end{array}$$

$$\begin{array}{l}
 \text{NaOH} \\
 23.0 \text{ g/mol} + 16.0\text{g/mol} + 1.01\text{g/mol}
 \end{array}$$

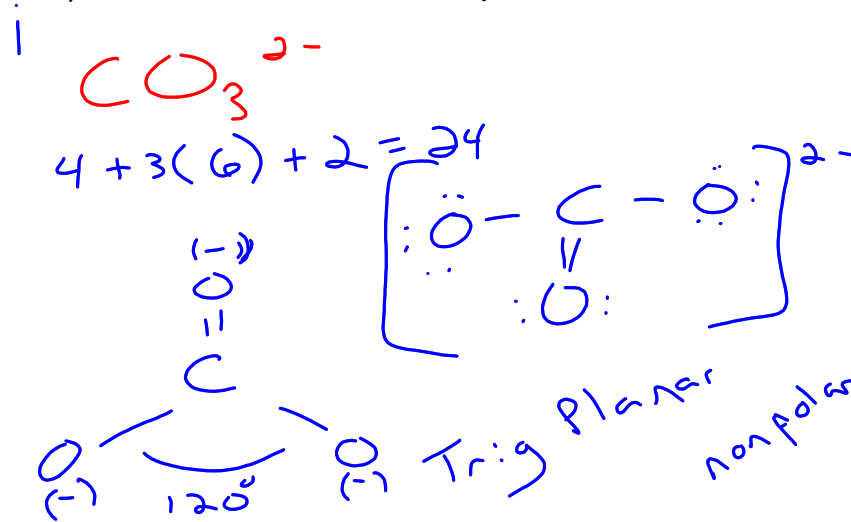
$$\begin{array}{l}
 1.11 \text{ mol Mn}_3(\text{SO}_4)_2 \\
 3(54.9\text{g/mol}) + 7(32.1\text{g/mol}) + 28(16.0\text{g/mol}) \\
 165\text{g/mol} + 225\text{g/mol} + 448\text{g/mol} \\
 \qquad\qquad\qquad 838\text{g/mol} \\
 \hline
 1.11 \text{ mol} \quad \left| \begin{array}{l} 838\text{g} \\ \text{mol} \end{array} \right. = 930. \text{ g}
 \end{array}$$

Main Topics on Unit 3 Test

- naming compounds
- writing formulas from names
- percent mass
- molar mass
- converting from g to mol and mol to g
- Lewis structures
- VSEPR
 - including name, bond angles, and polarity

Practice Problem 1, for CO_3^{2-}

- name the compound
carbonate
- draw the Lewis structure
- draw the VSEPR (with bond angles)
- name the VSEPR shape

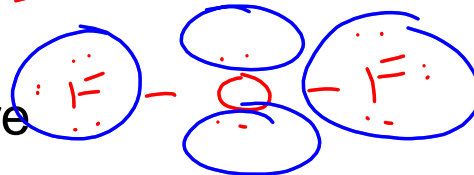


Practice Problem 2, for OF_2

$6 + 2(7) = 20$ oxygen difluoride

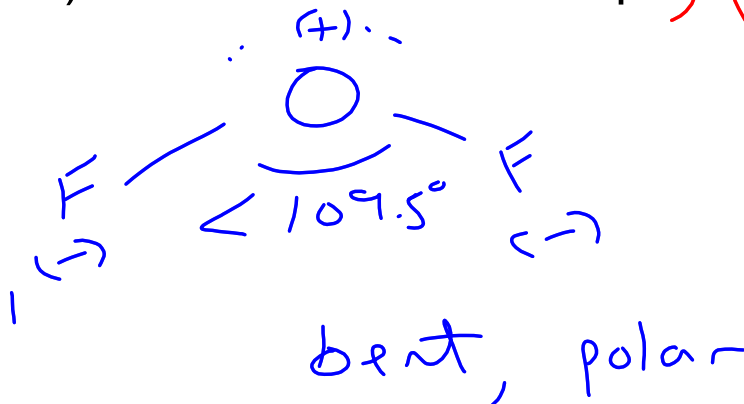
a) name the compound

b) draw the Lewis structure



c) draw the VSEPR (with bond angles)

d) name the VSEPR shape, *polar?*



Practice Problem 3, for PCl_3

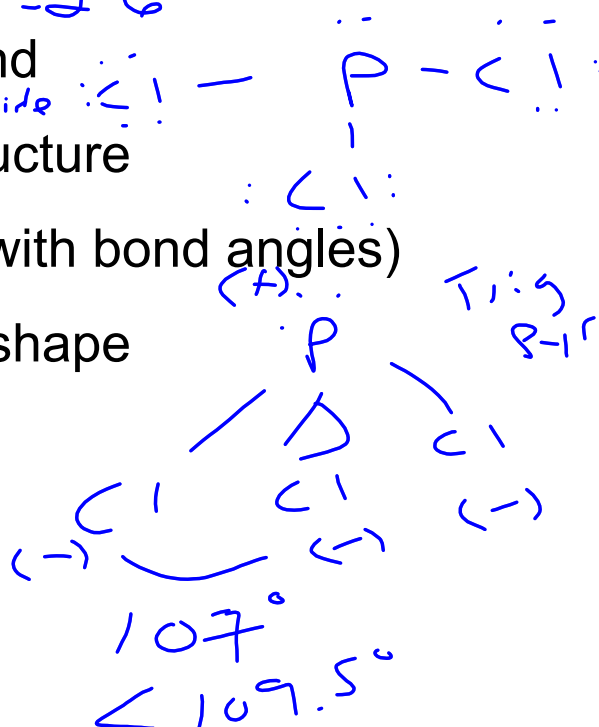
a) name the compound

phosphorous trichloride

b) draw the Lewis structure

c) draw the VSEPR (with bond angles)

d) name the VSEPR shape



Practice Problem 4 - Name the following:

a) CaCl_2 calcium chloride

b) $\text{Ba}(\text{OH})_2$ barium hydroxide

c) Rb_3O rubidium oxide

d) P_2Br_4 diphosphorous tetrabromide

Practice Problem 5 - Write the formula for each

a) potassium bromide KBr

b) sulfur monochloride S_2Cl_2

c) aluminum hydroxide $Al(OH)_3$

d) xenon tetranitride XeN_4

Practice Problem 6 - find the molar mass and percent mass of each element.

a) $CaCl_2$ $40.1g/mol + 2(35.5g/mol) = 111.1g/mol$
 $Ca: \frac{40.1g/mol}{111.1g/mol} = 36.1\%$

b) P_2Cl_4

c) RbF $Cl_2: \frac{71.0g/mol}{111.1g/mol} = 63.9\%$

P_2Cl_4
 $2(31.0g/mol) + 4(35.5g/mol)$
 $62.0g/mol + 142g/mol = 204g/mol$
 $\frac{62.0g/mol}{204g/mol} = 30.4\%$
 $\frac{142g/mol}{204g/mol} = 69.6\%$

$RbF: \frac{85.5g/mol}{104.5g/mol} = 81.8\%$
 $\frac{19.0g/mol}{104.5g/mol} = 18.2\%$