

4/26 - "Finish" chapter 11

Sunday - Problem club with Ali

Monday - Review in class

Tuesday - Expt 13, last problem club with Ali

Wednesday - CK4

good luck with the test and finals ;)

identify the solid
in each pair



identify the gas
in each pair



Metals

- all metals are
solids at RT
(except Hg)

ionics

- always solids
at RT

(use intermolecular forces
to determine s/l/g)
covalent-molecular

LDF & MM
(solids: $\text{MM} > 250$)

(gases: $\text{MM} < 100$ and
no H-bonding)

network-covalent

- Always solids

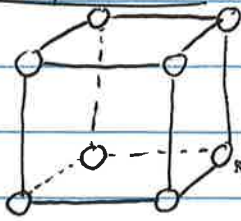
network-covalent: flat "sheets" of carbon atoms that are held together by London dispersion forces

- has infinite molar mass
- example: graphite, diamond

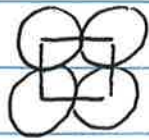
not network-covalent: Buckyball (C_{60})

- has definitive MM (720g/mol)

simple cube

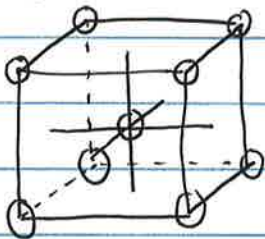


elements (or big ions)



8 corners each $\frac{1}{8}$ inside unit cell \Rightarrow 1 total

body-centered



$$8 \times \frac{1}{8} = 1$$

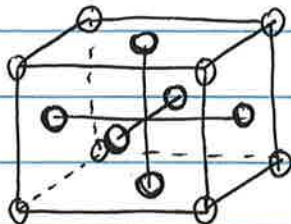
corners

$$1 \text{ in middle} = 1$$

body-center

$$\text{total} = 2 \text{ inside unit cell}$$

face-centered



$$8 \times \frac{1}{8} = 1$$

corners

$$6 \times \frac{1}{2} = 3$$

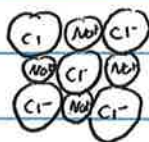
face-center

$$\text{total} = 4 \text{ inside unit cell}$$

for ionic...

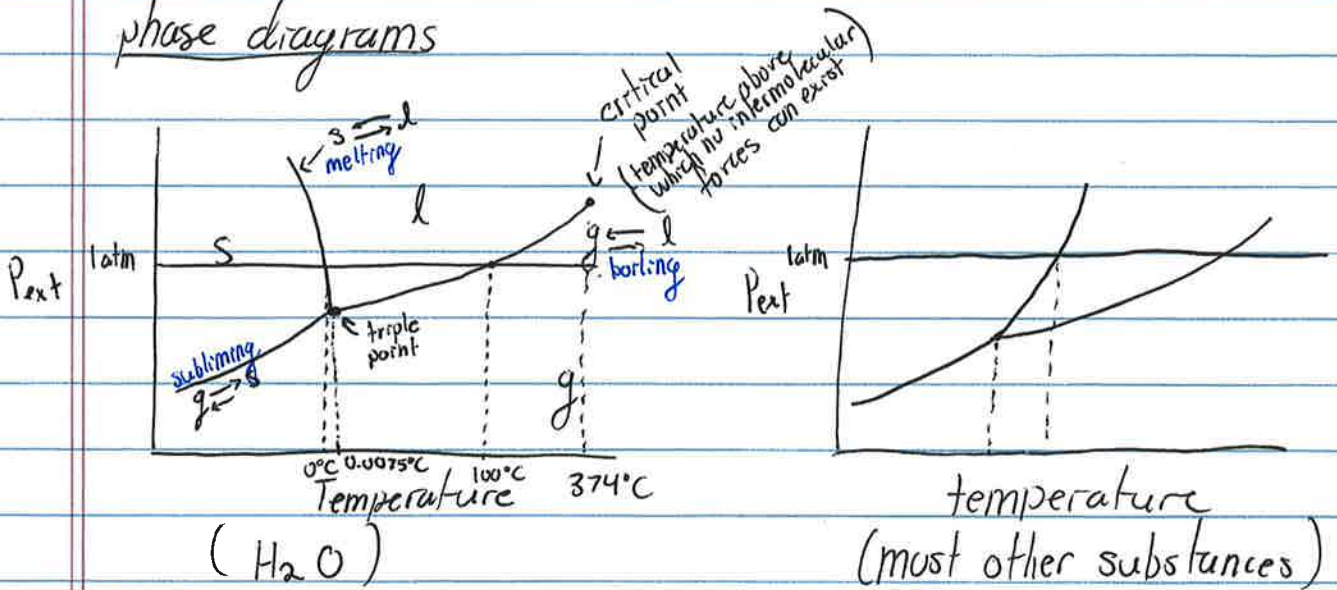
- anions are usually big, cations small
- anions make simple cube, body centered, or face centered
- cations fill "gaps" like edges, body center

NaCl



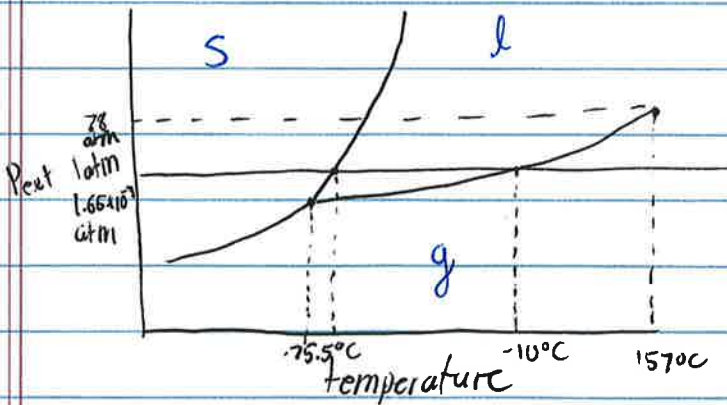
(plus 1 Na^+ in body center)

phase diagrams

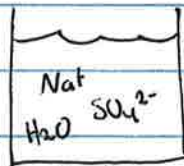


• Create a phase diagram for SO₂.

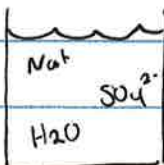
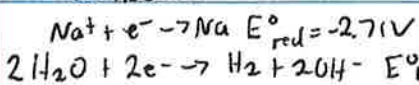
$T_b = -10^\circ C$ $T_f = -72.7^\circ C$ $TP = -75.5^\circ C$ and $1.65 \times 10^{-3} atm$
 $CP = 157^\circ C$ and $78 atm$



Na₂SO₄ (demo)



cathode:



anode:

