10.50 c

density $\frac{g}{L}$ $SF_{6(g)}$ $32+6(19)$

$\frac{g}{V}$

$PV = nRT$

atm L mole K

$0.08206 \frac{L \cdot atm}{mole \cdot K}$

707 torr

21 °C $+273 = 294K$

$\frac{707 \text{ torr}}{760 \text{ torr}} \frac{1 \text{ atm}}{} = 0.93 \text{ atm}$

$\frac{PV}{1} = \frac{g}{MW} RT$

$density = \frac{g}{V} = \frac{P(MW)}{RT}$

$\frac{(0.93)(146)}{(0.08206)(294)} = 5.63 \text{ g/L}$

Dec 16-7:38 AM

16.40 250mL, 2.3g $C_3H_{8(g)}$

(a) 23° C P = ?

$PV = nRT$

$P = \frac{nRT}{V} = \frac{(\frac{2.3}{44})(0.08206)(296)}{0.250} = 5.08 \text{ atm}$

(b) V at STP

$V = \frac{nRT}{P} = \frac{(\frac{2.3}{44})(0.08206)(273)}{1}$ Std T

STP → 1

Dec 16-8:24 AM

Balloon sea level 6 l, 1 atm, 22°C

Way up high ? l 0.45 atm, −21°C

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

$$\frac{(25)\,1(6)}{(0.45)\,295} = \frac{(0.45)(V)}{252}$$

$V = 11.3$ l

Dec 16-8:30 AM

Chap 8 Bonding .... James Bonding.

STABLE → Full P.E.C. (Valence)

→ Stable octet (8 val e-)

Ionic

M + e- → NM

Transfer of Acc Valence-

Na_2O

Covalent

Share Valence e-

① Non-Polar Covalent Bond = Sharing of shared e- Same electronegativity

② Polar Covalent Bond

O greater electronegativity than H

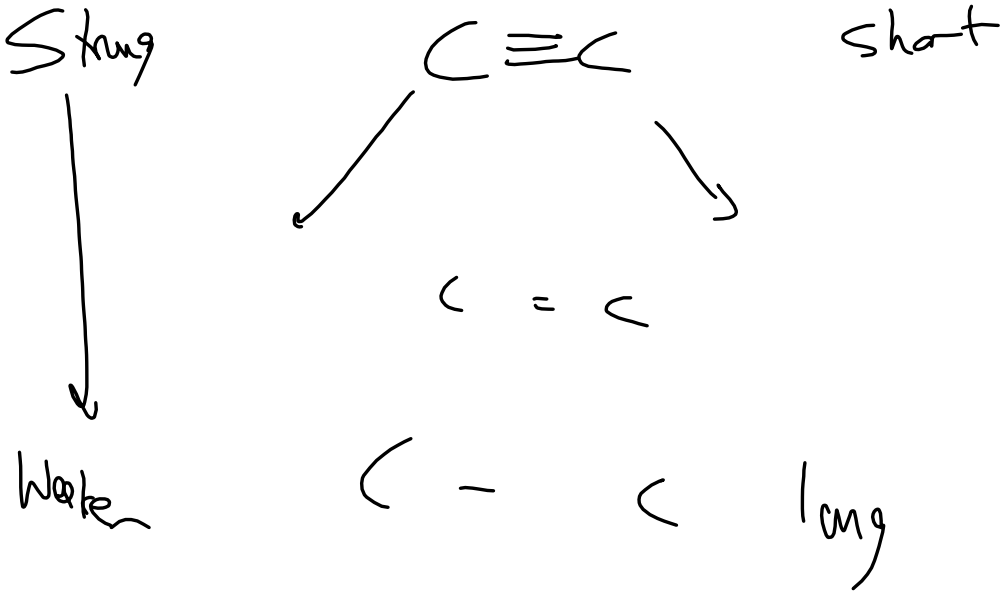
③ Coordinate Covalent

H^+ has no e- to share

H has an extra pair

Dec 16-8:39 AM

Bond Strengths + Lengths



Dec 16-8:46 AM

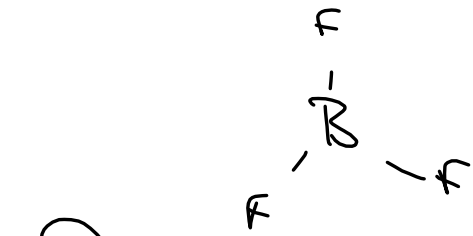
Bond Dissociation Energies

$\Delta H_{\text{Bond Dissoc. Energy}} = n\Sigma \text{Bonds Broken (Reactants)} - n\Sigma \text{Bonds formed (Products)}$

Dec 16-8:51 AM

Exceptions to octet rule

① Less Than an octet



b/c F has huge electrons. won't share extra

short charge central atom

② Odd # e⁻

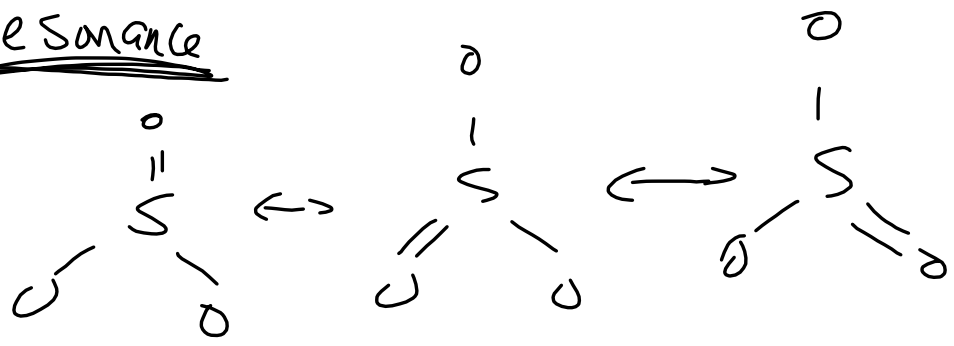
extra e⁻ goes to high prog

③ More Than an octet.

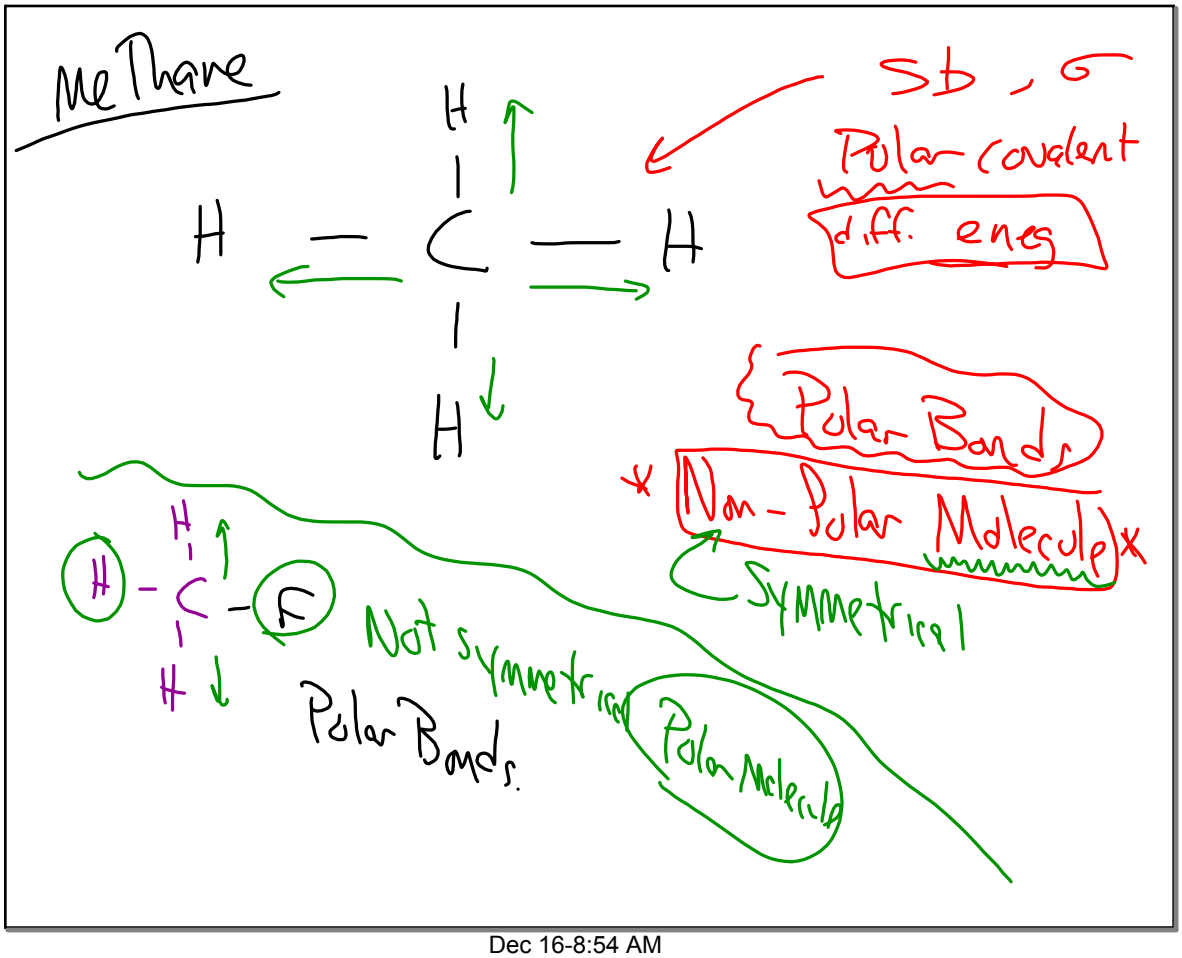
extra goes on central atom.

Dec 16-8:52 AM

Resonance



Dec 16-8:53 AM



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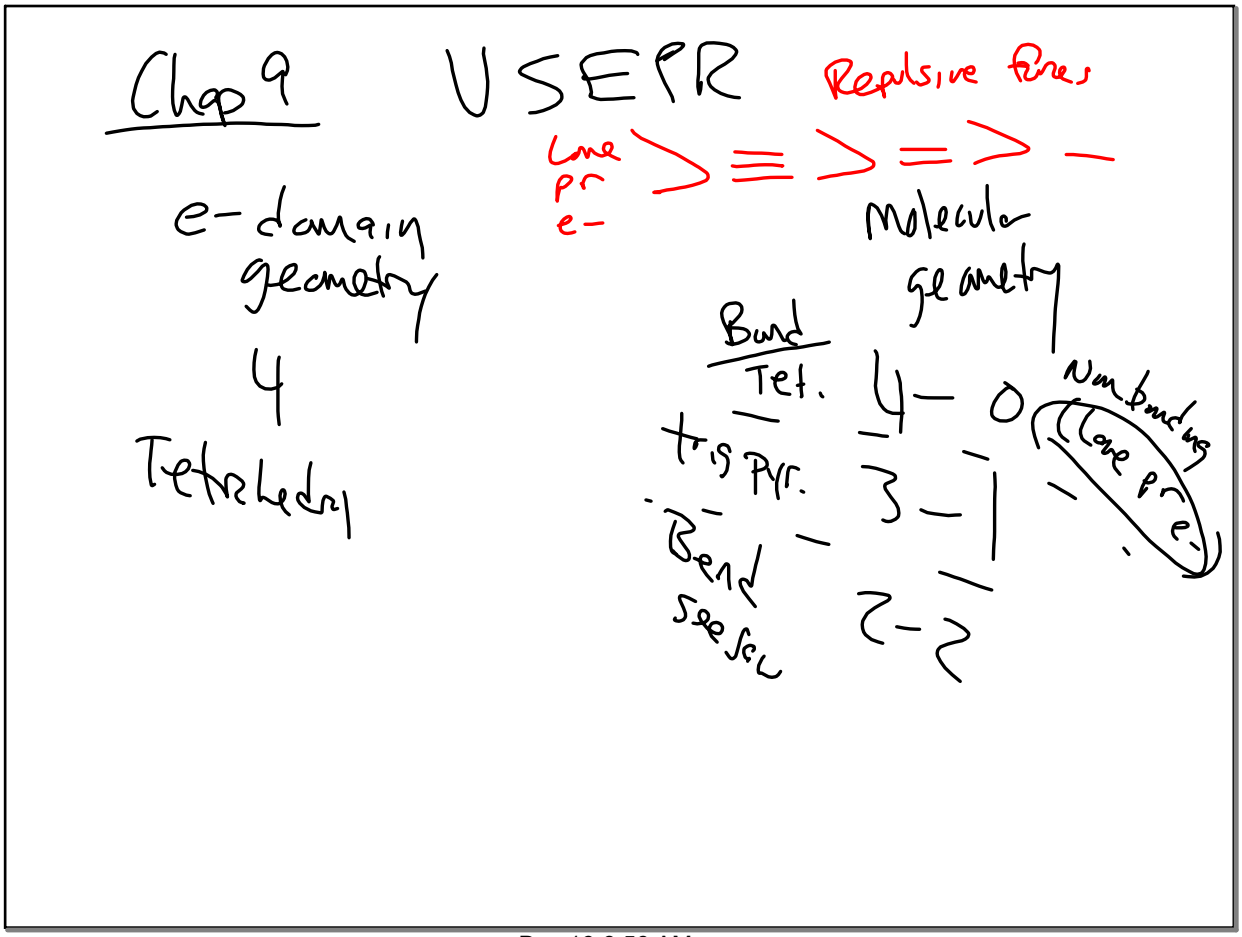


Dec 16-8:56 AM

Formal Charge on each element in a bond

↳ Closest to 0 ⇒ most stable structure

$FC = \text{Valence } e^- - \left(\tfrac{1}{2}\text{ Bonding } e^- + \text{All non Bonding } e^-\right)$

Dec 16-9:02 AM

Molecular orbitals BO = ½ (Bond − Anti Bond)

Atomic → Molecular orbitals ← Atomic

p: p_x p_y p_z

σ

s s

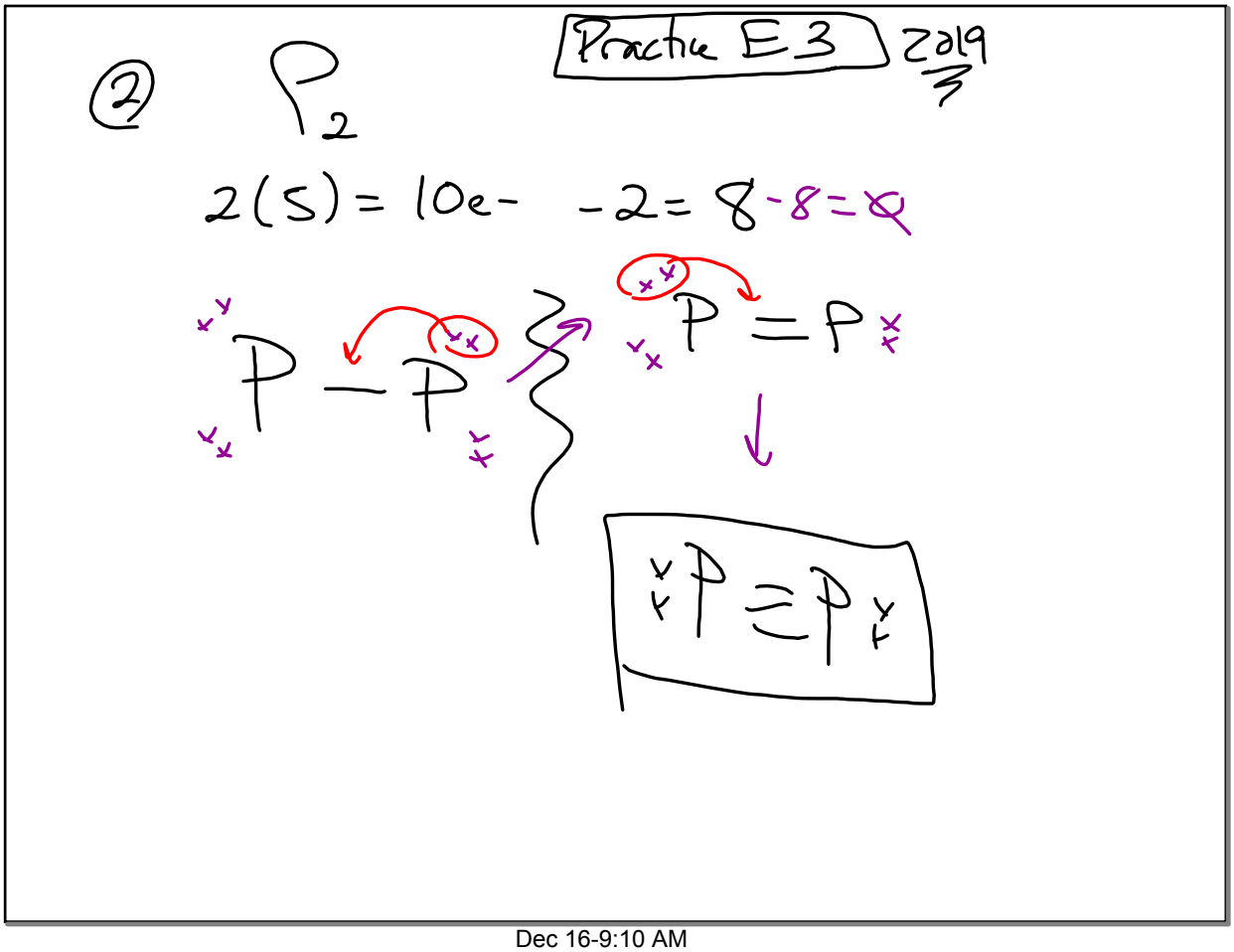
Overlap ON internuclear axis

Y π Z

σ X

π above/below internuclear axis

Dec 16-9:04 AM



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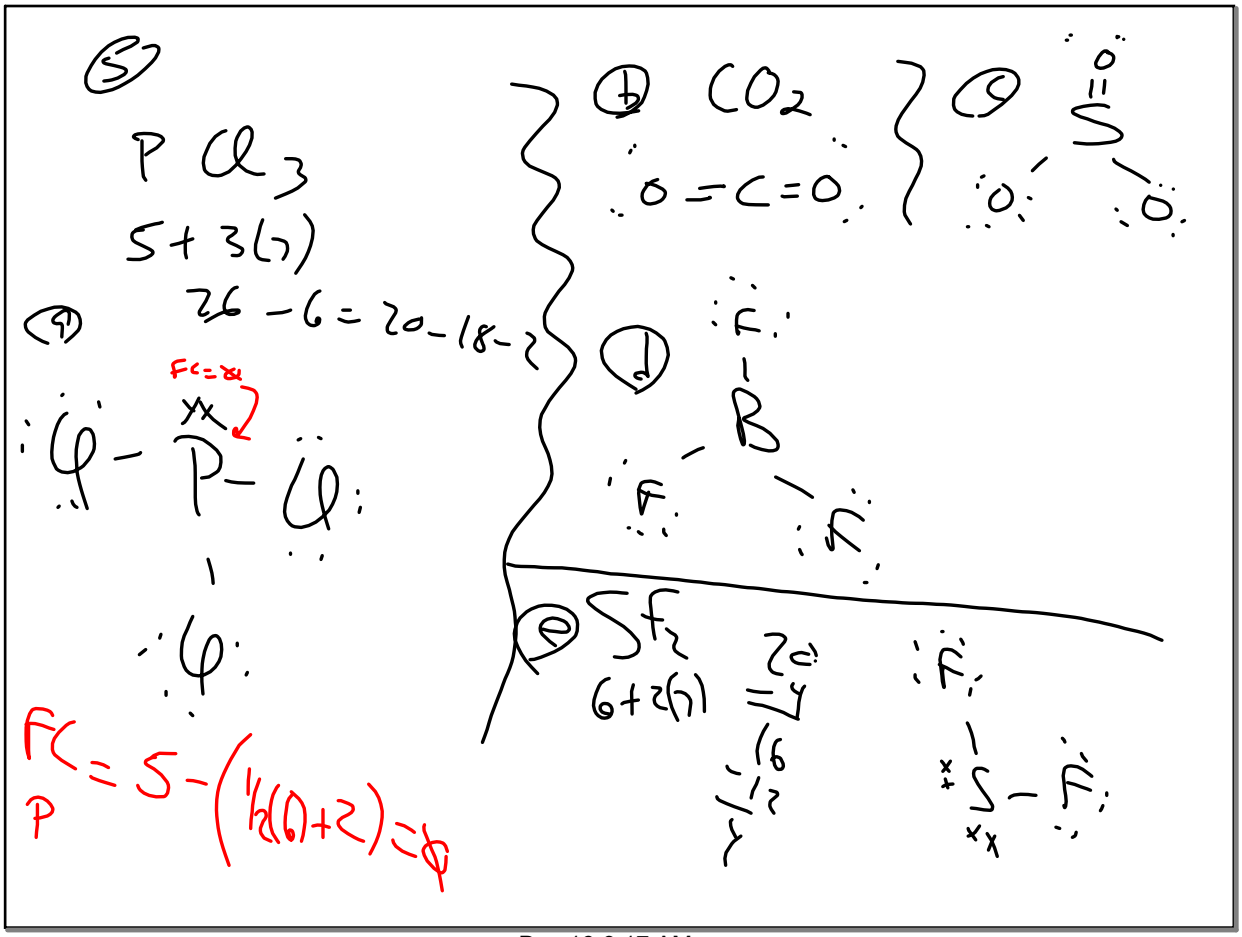

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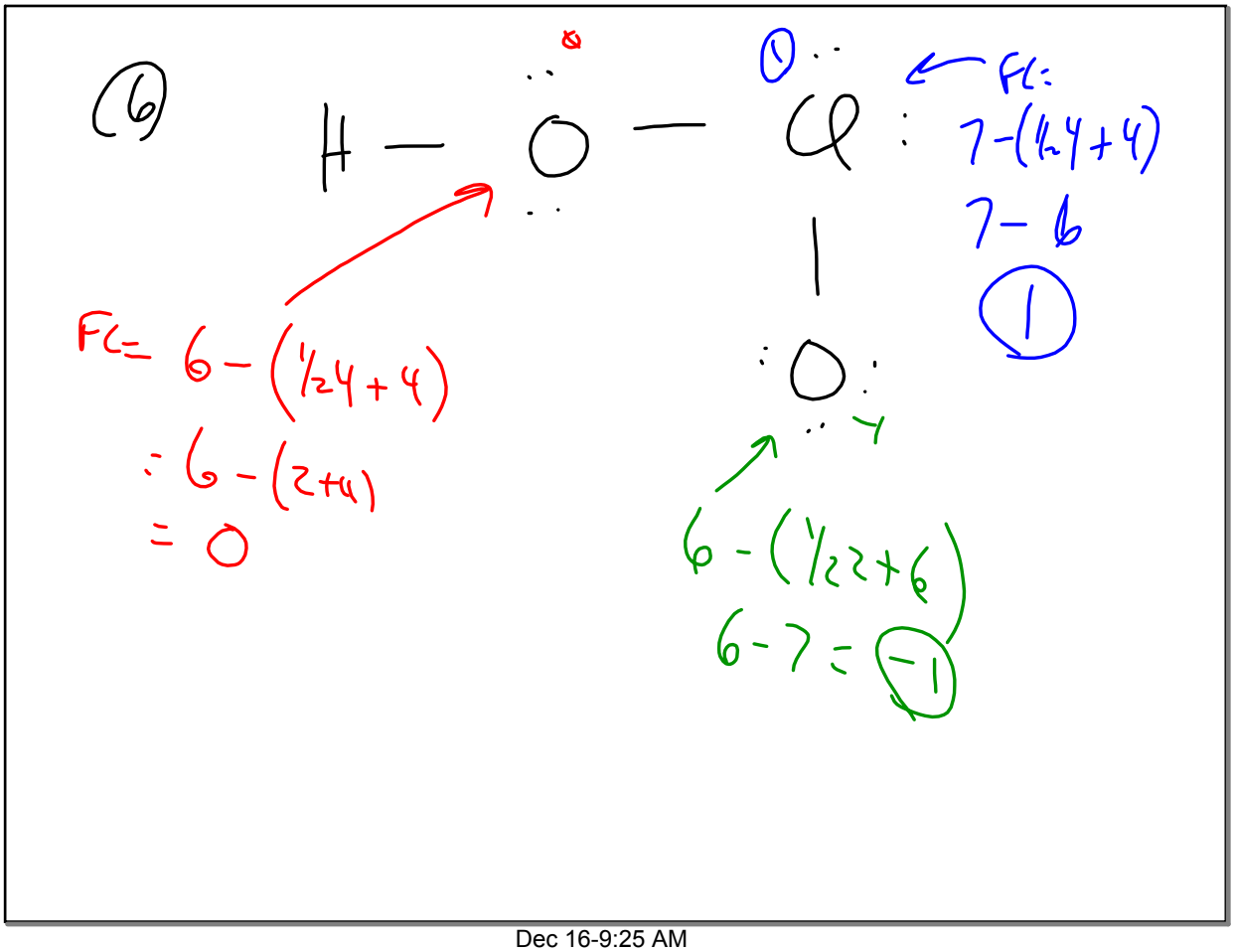

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Dec 16-9:31 AM