Steps to Draw Covalent Structures

1. Add up all valence e- (Bank)
2. Metal (more metallic) ↓ ← in middle
3. Attach rest with Single bonds (Subt e- used from Bank)
4. Fix periphery (Subt # e- used)

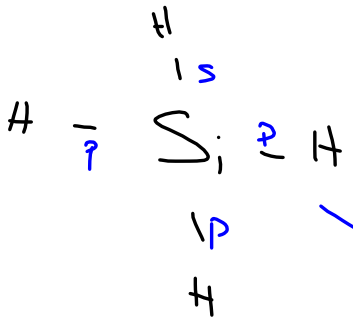
⇒ 5. If There are extra e- → Go on Central atom

⇒ 6. If we still need more e- → Try double/triple bonds

Dec 3-8:04 AM

(4Sg) SiH_4

$1(4) + 4(1) = 8 - 8 = 0$



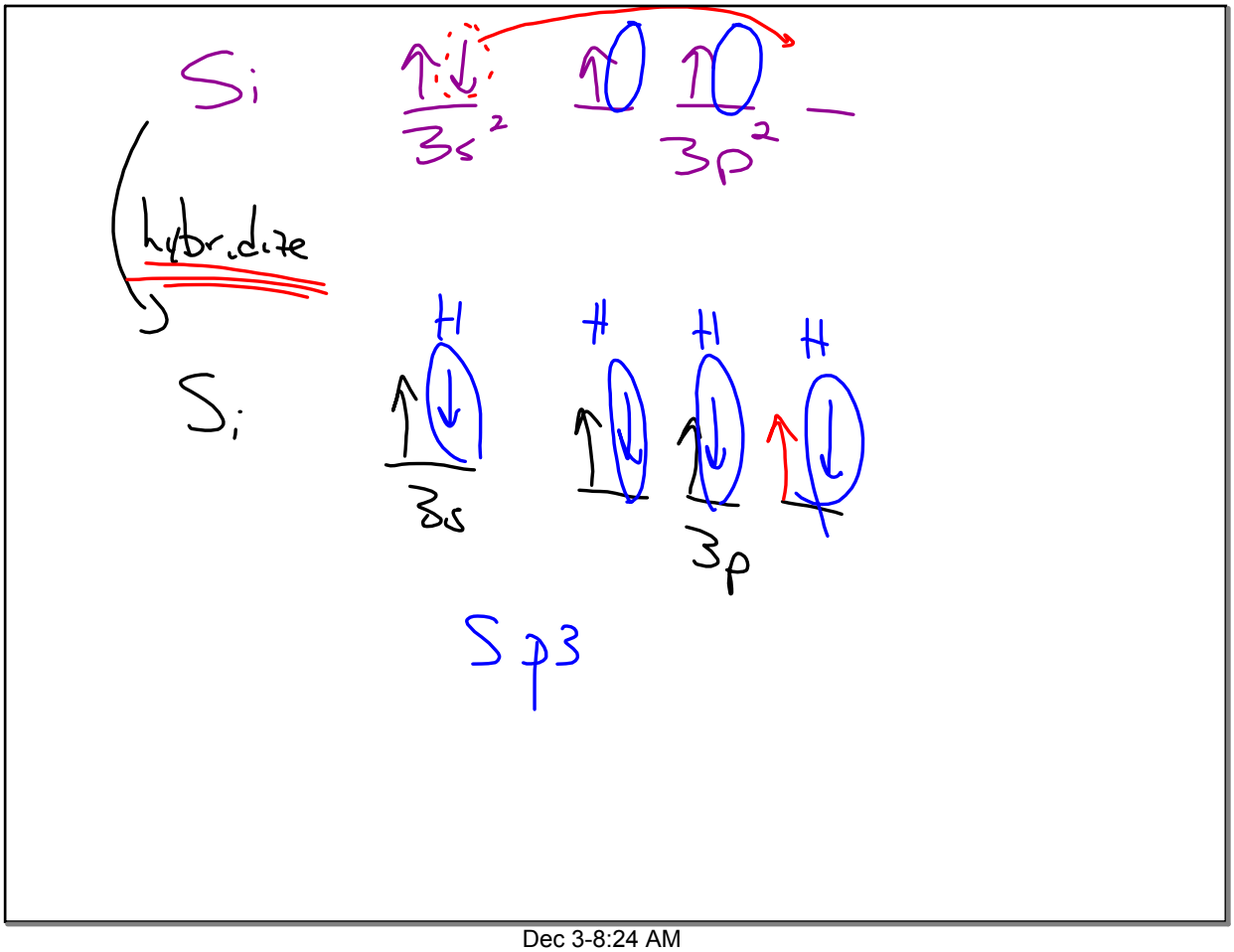
Si → 4 bond sites

0 non-bond sites (lone pairs of e-)

Tetrahedral

sp^3 hybrid

Dec 3-8:17 AM



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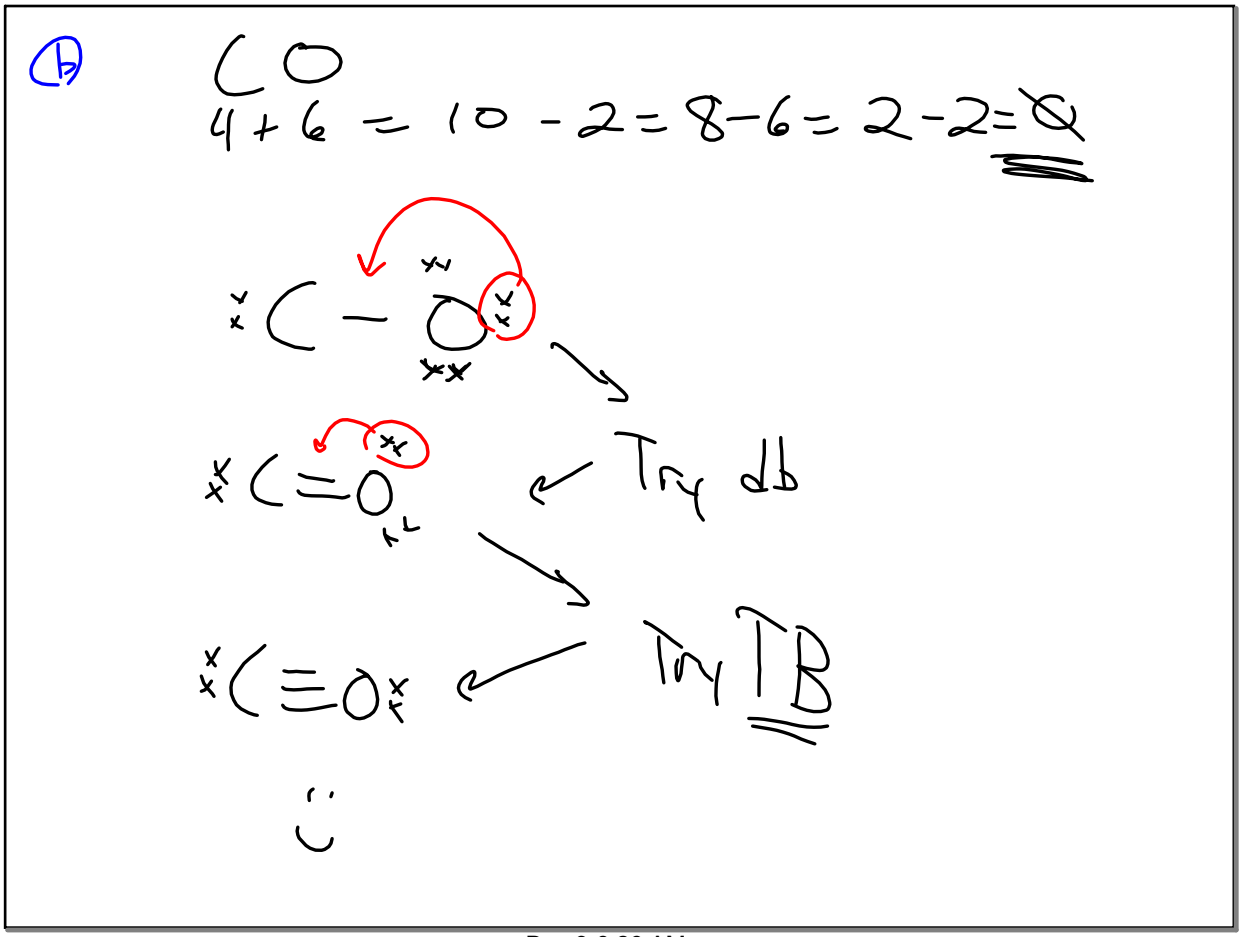

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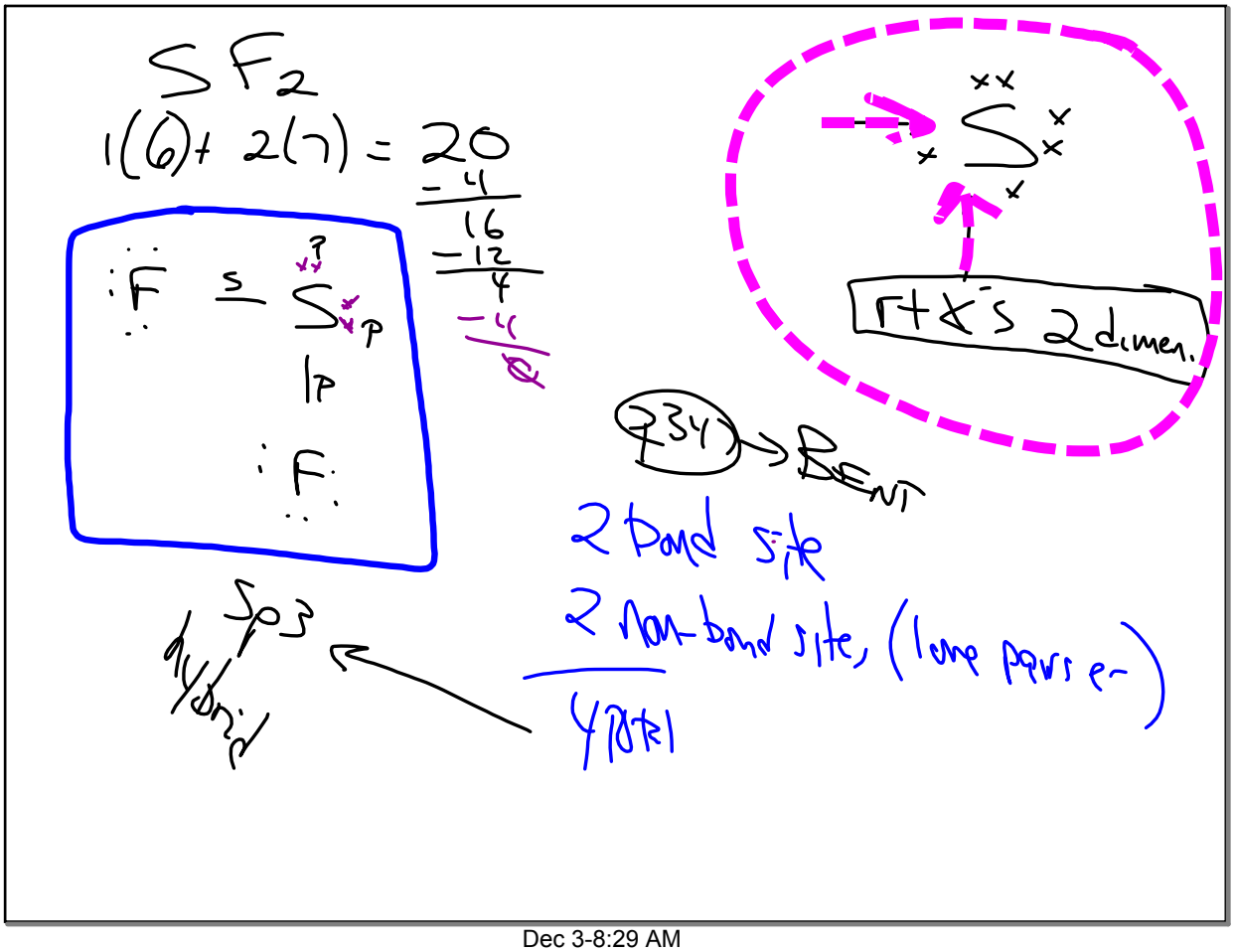

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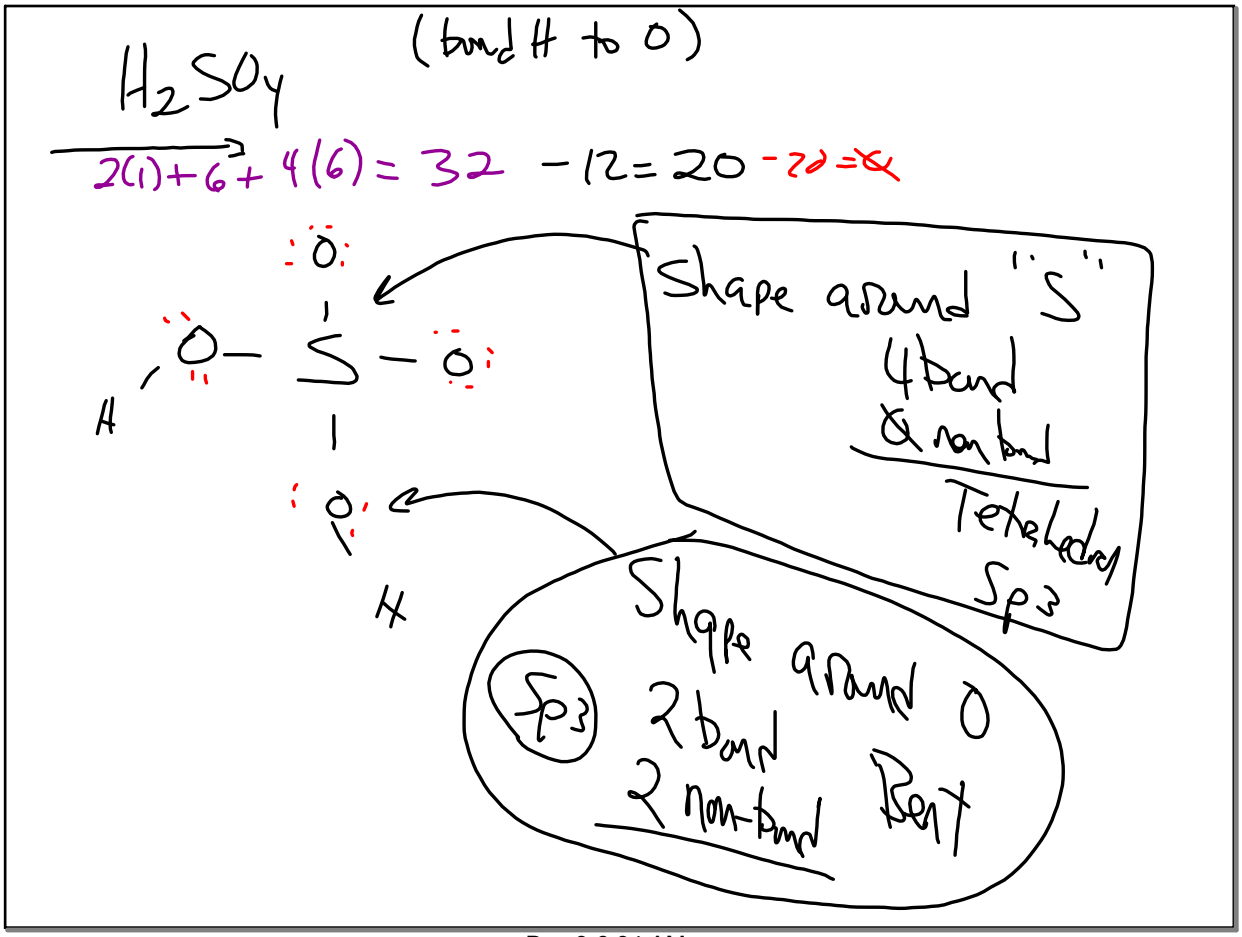

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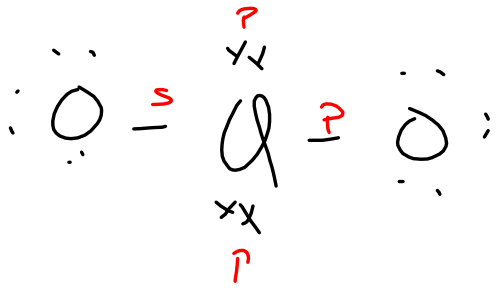
ClO_2^-

$7 + 2(6) + 1 = 20 - 4 = 16 - 12 = 4 - 4 = 0$



sp^3 hybrid
B + NB

2 bond
2 non bond
} Bent

Dec 3-8:38 AM

Formal Charge (FC)

Goal – Minimize the Formal charge.
Closest to 0

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

Each element

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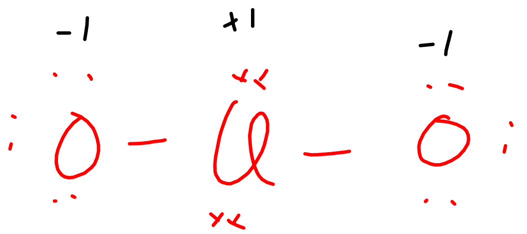

FC = 6 - (1 + 6) = -1

Vale ½b All nb

FC = 7 - (2 + 4) = +1

Dec 3-8:43 AM

8/46 a - d.

→ ⊗ include hybridization around central atom

→ ⊗ Shape p 347 + 350 bond sites non bond sites

→ ⊗ Formal charge on each element.

Dec 3-8:45 AM