Kinetics + Equilibrium

Affect the RATE of a reaction
↳ how fast.

Reaction ⇒ Particles must collide (hit)

Head on collision → FAST!

Aug 7-10:00 AM

Speed up particles

Increase the rate of reaction

① ↑ Pressure on gases. $\frac{\uparrow PV\downarrow}{T}$
↓ Volume of a gas

② ↑ Temp = Average K.E.!

③ Mix / Stir / Shake.

④ Larger surface area for reaction to occur.

⑤ Catalyst

⑥ ↑ Concentration More particles - chance of a collision ↑

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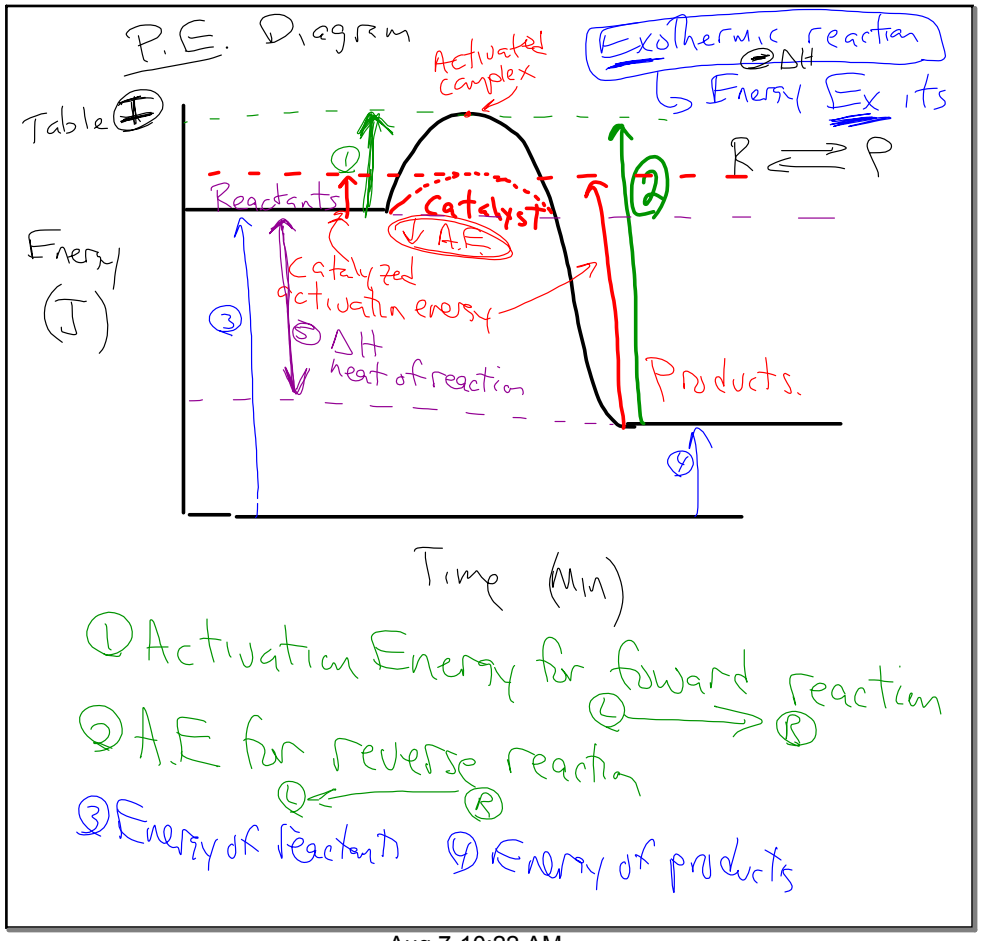

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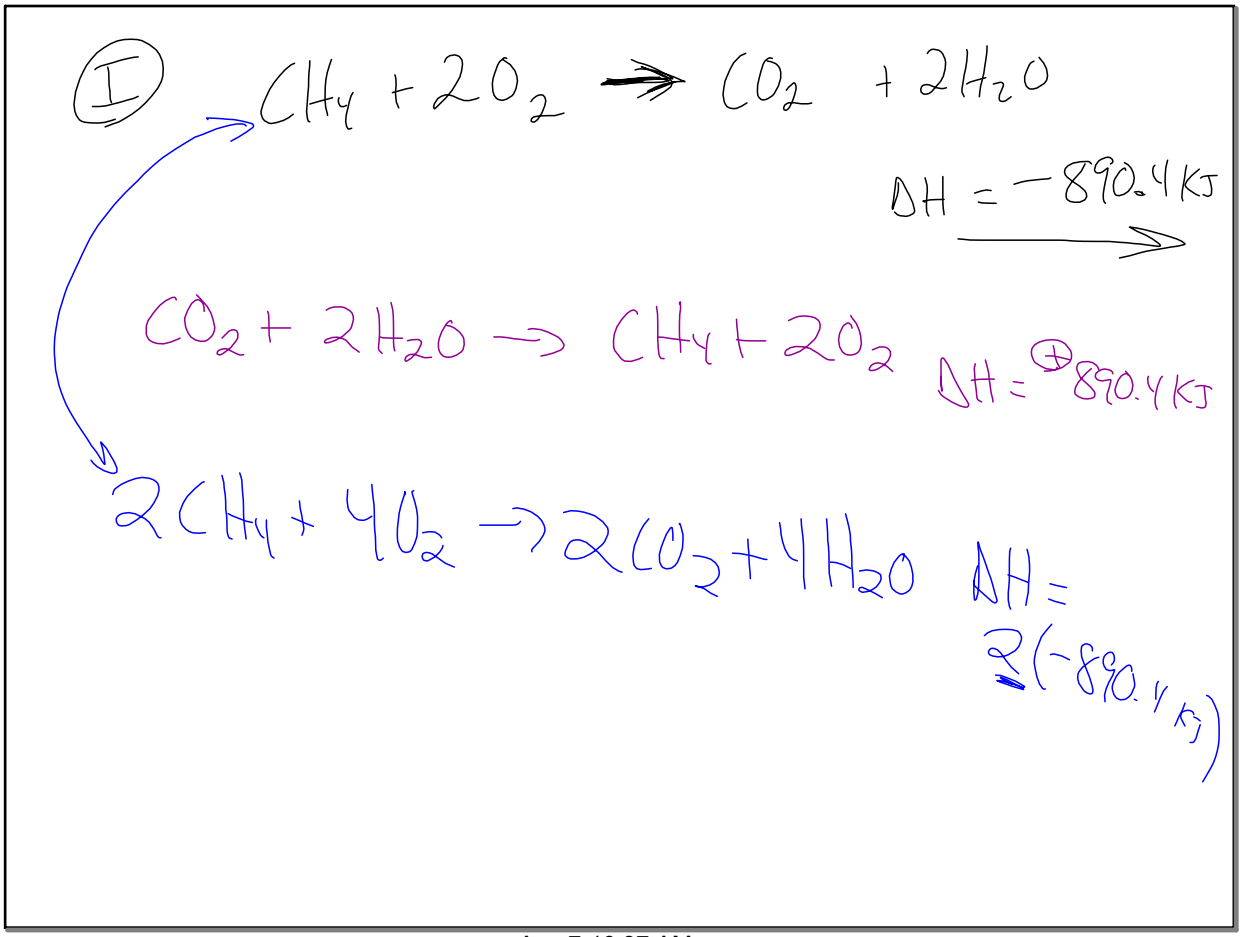

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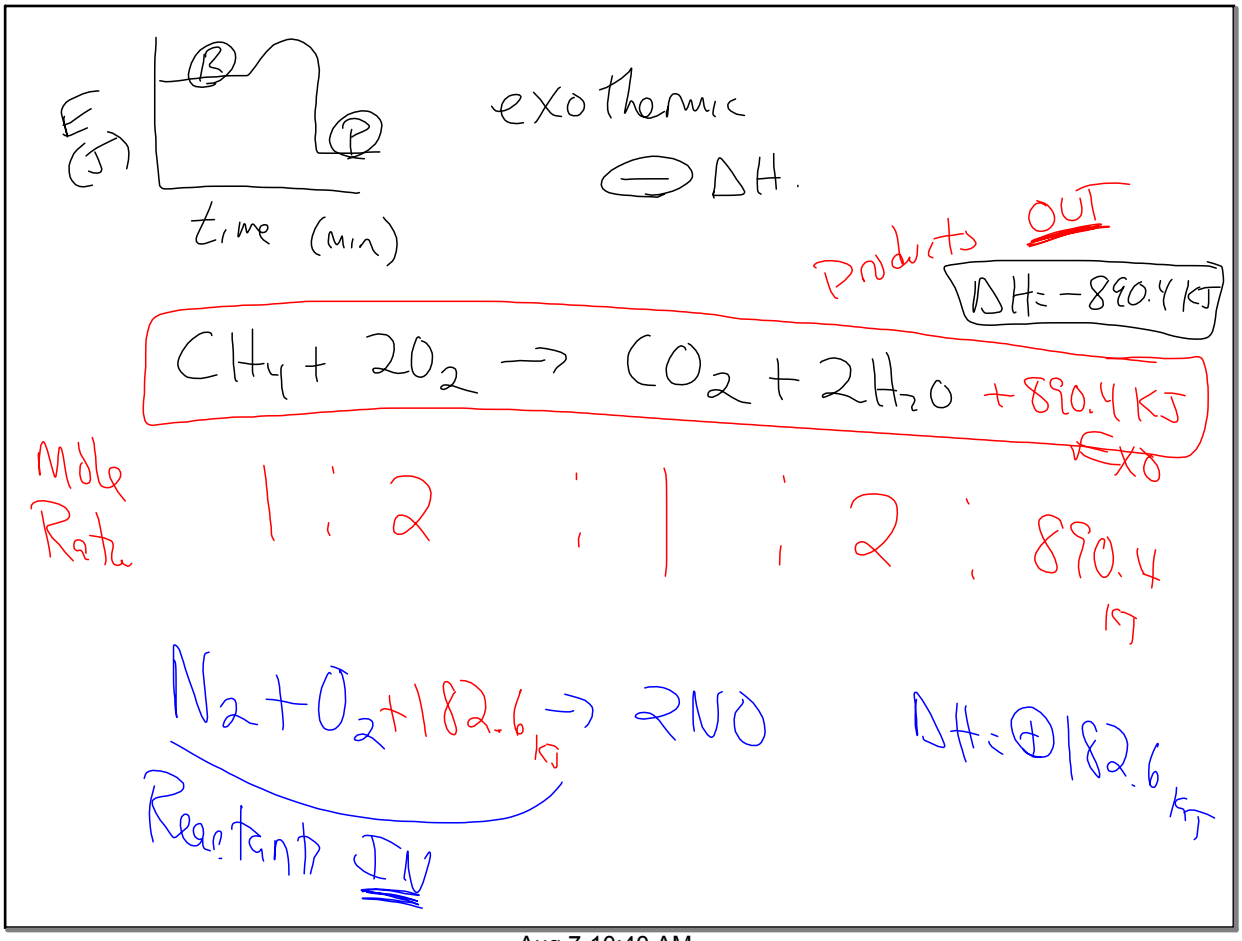

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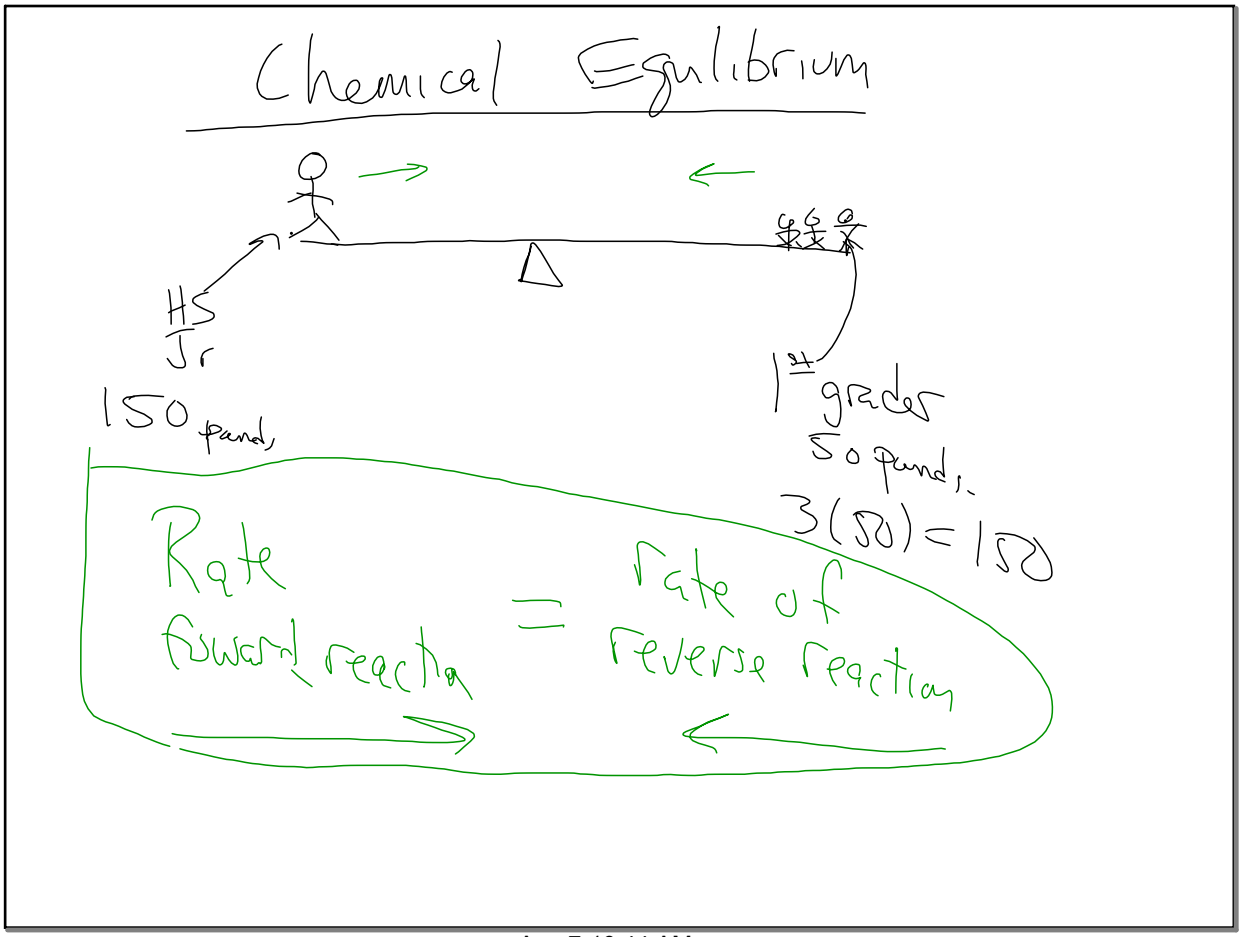

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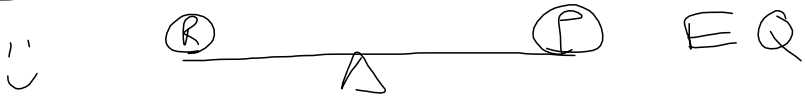
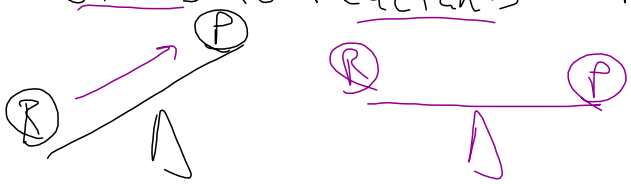
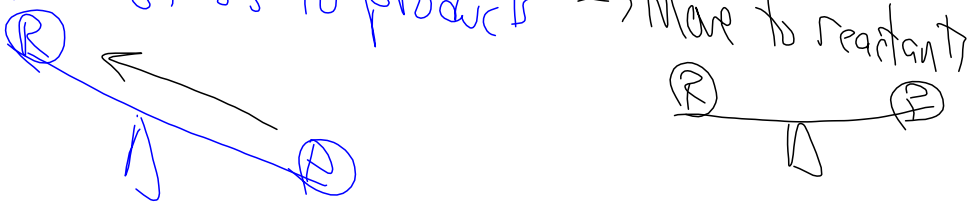
LeChatlier's Principle



① Add stress to reactants → Move to products.



② Add stress to product → Move to reactants



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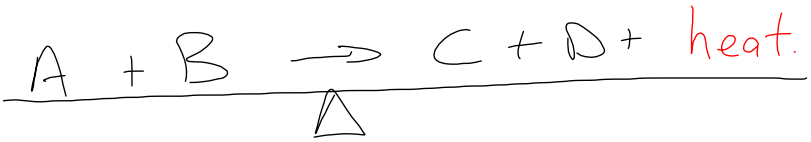
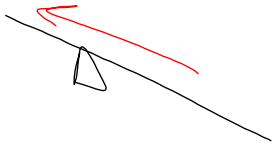


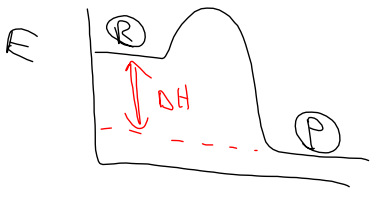
① If we add Heat



ΔH = Enthalpy

↳ heat of reaction

difference in heat energy between R and P



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Entropy (ΔS)

↳ Measure of disorder

Messy!

Aug 7-10:57 AM

Mass action expression

Equilibrium Constant K_{eq}

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(\ell)}$

$$K_{eq} = \frac{[\text{products}]^{\text{coeff}}}{[\text{reactants}]^{\text{coeff}}} = \frac{[H_2O]^2}{[H_2]^2[O_2]^1}$$

(multiply)

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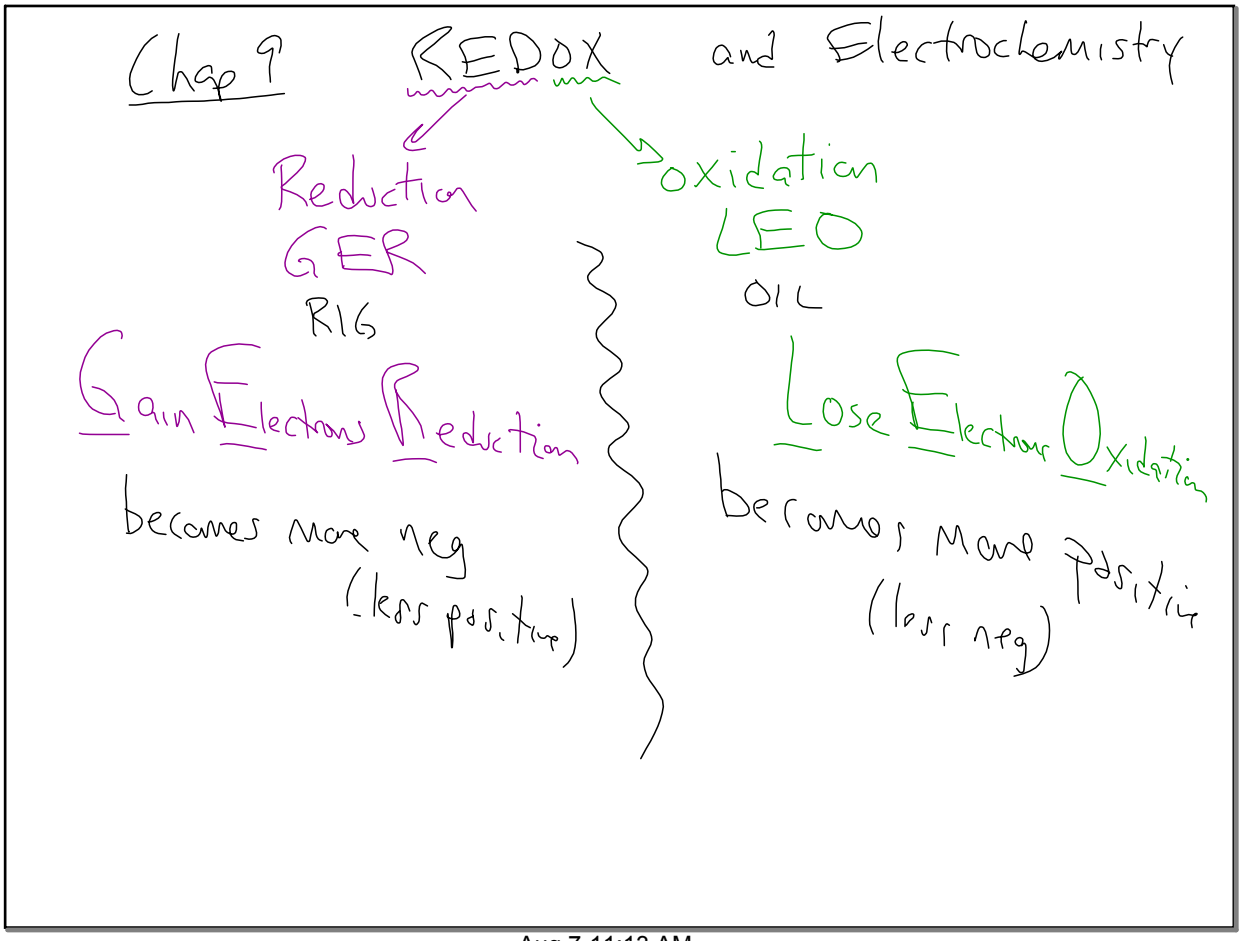

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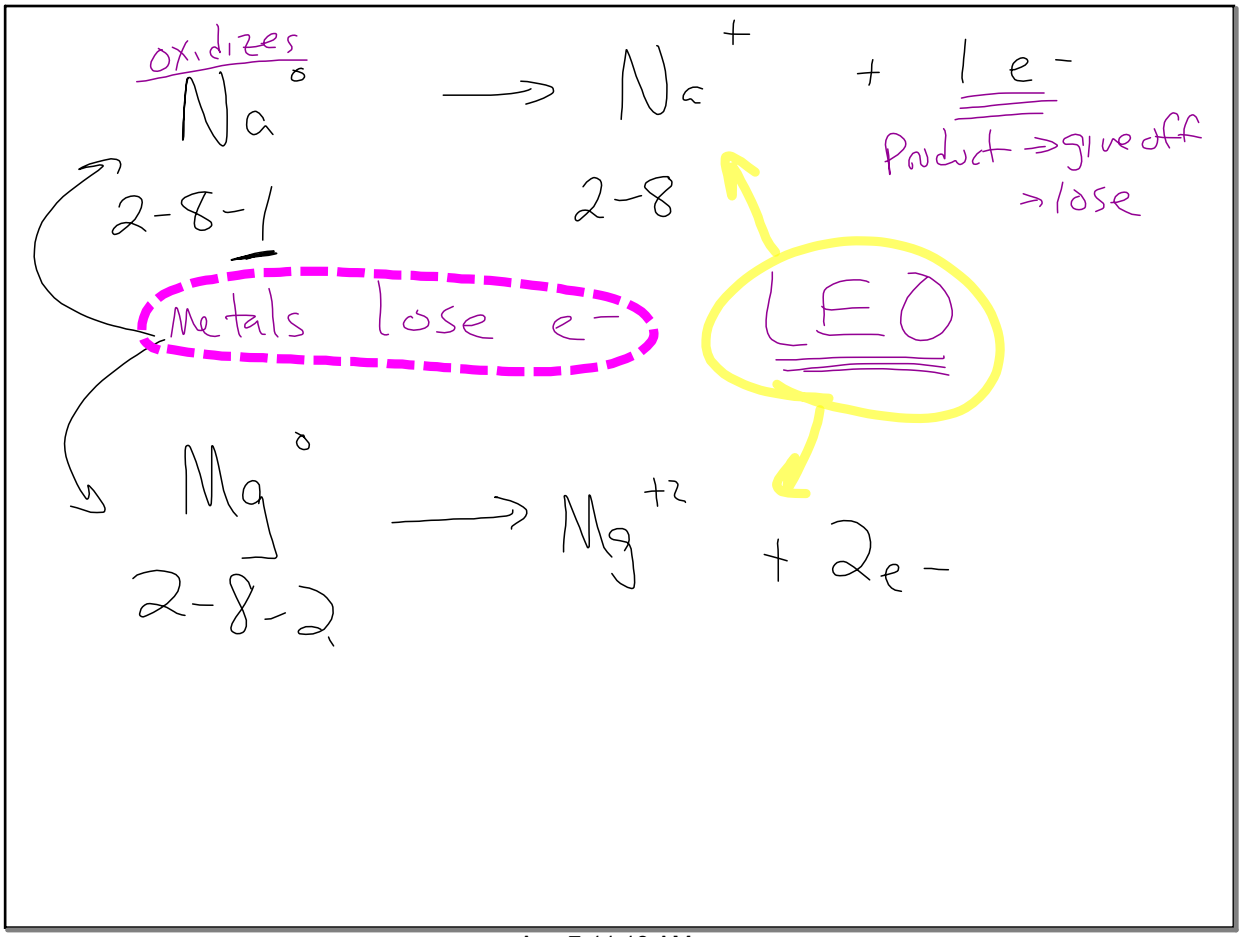

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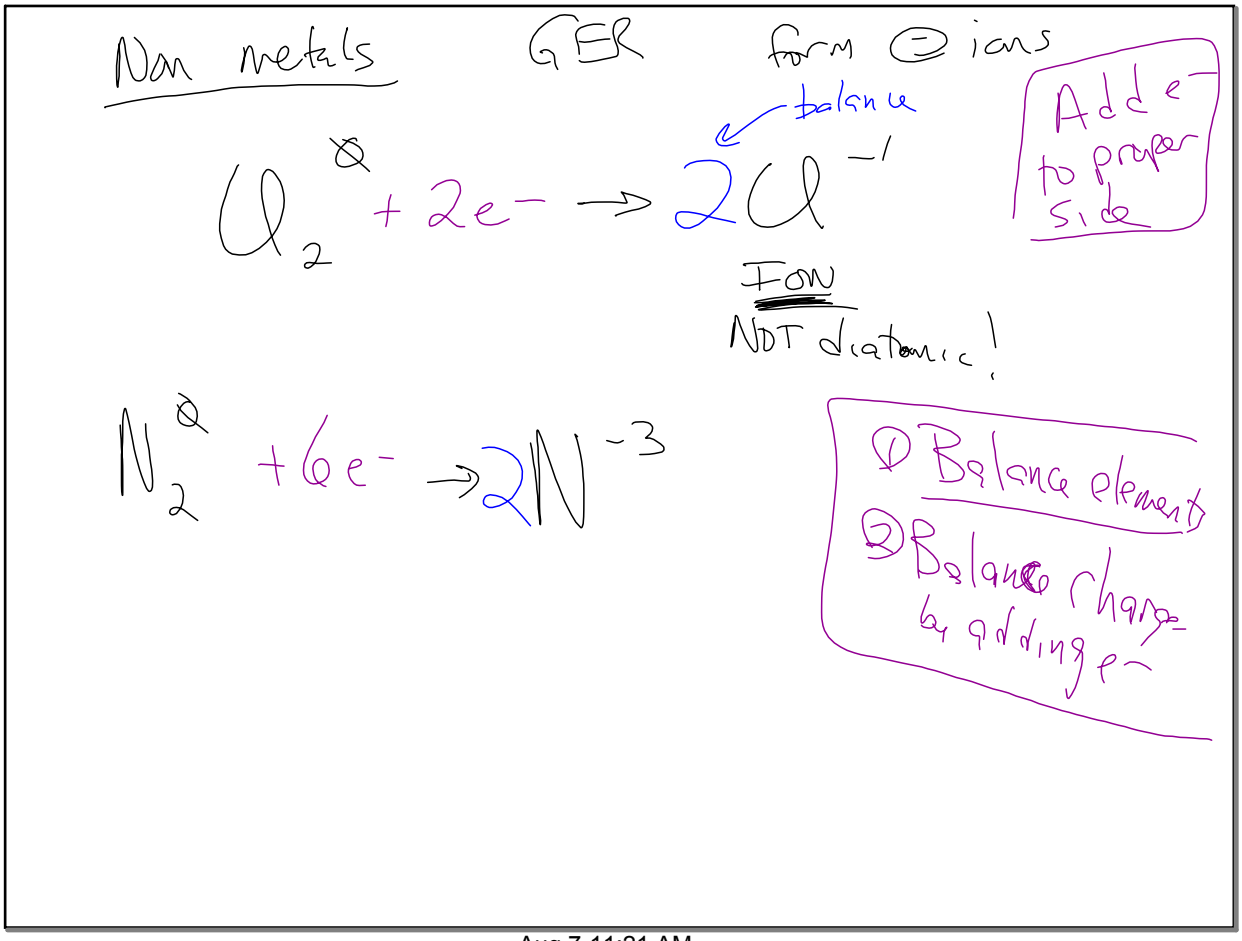

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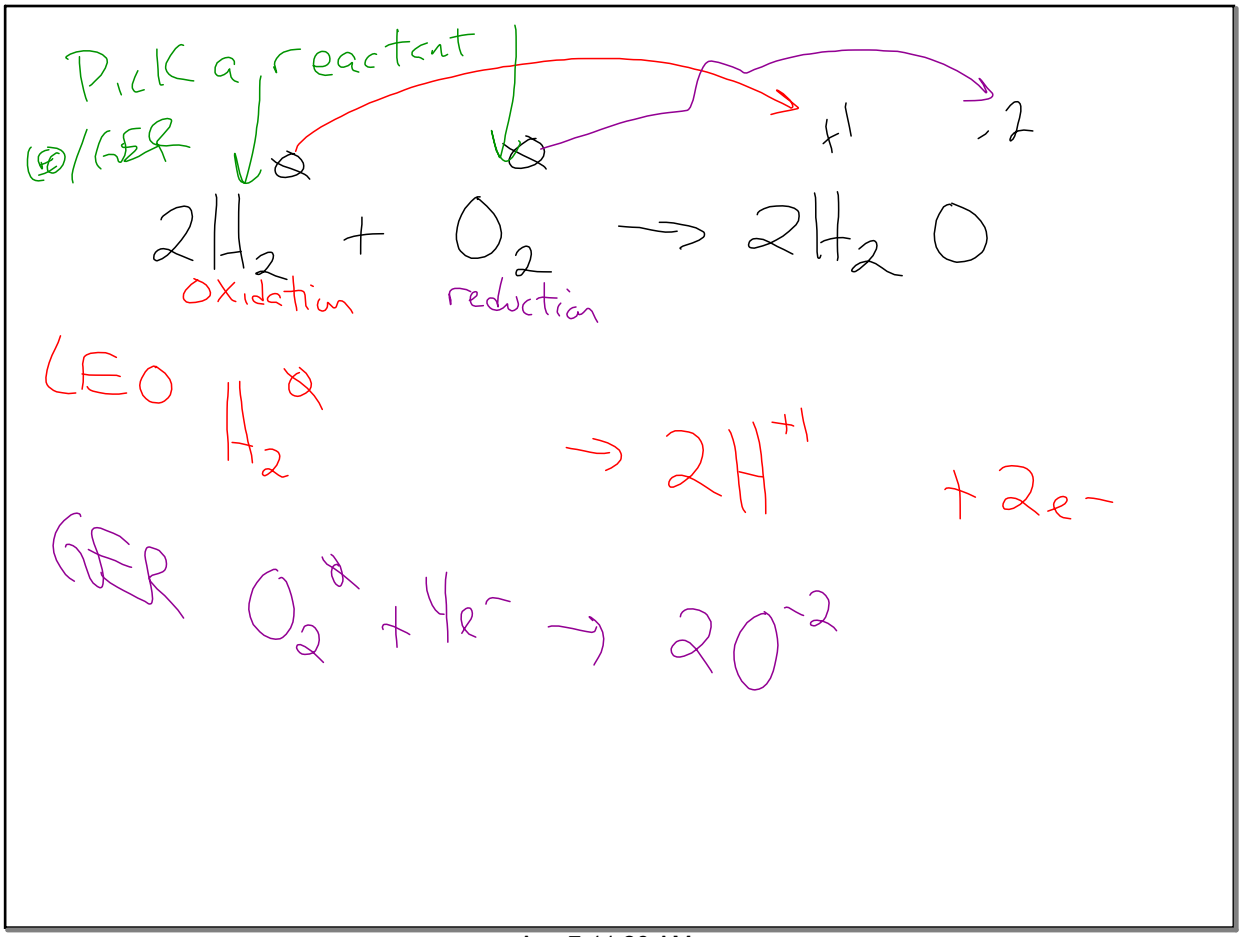

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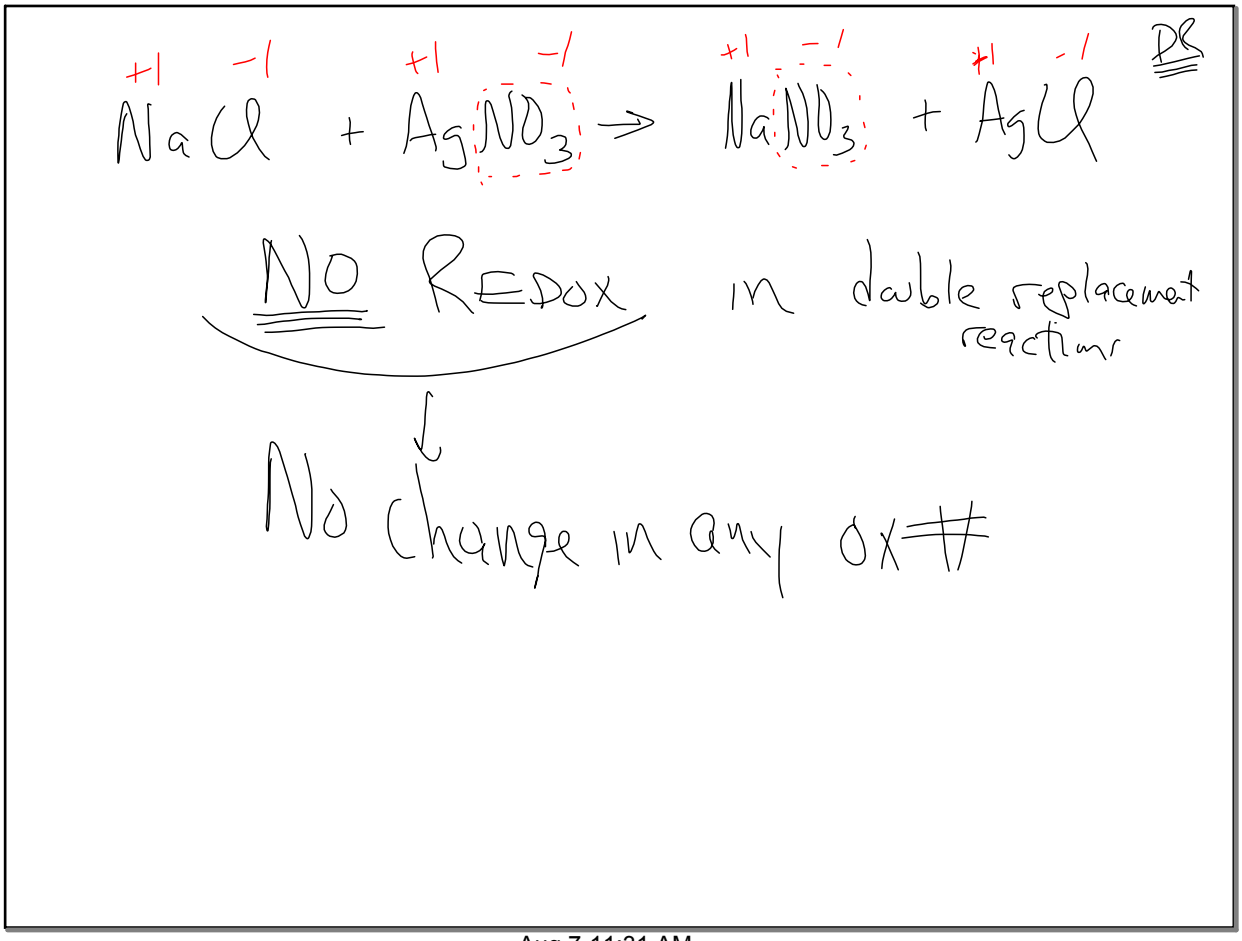

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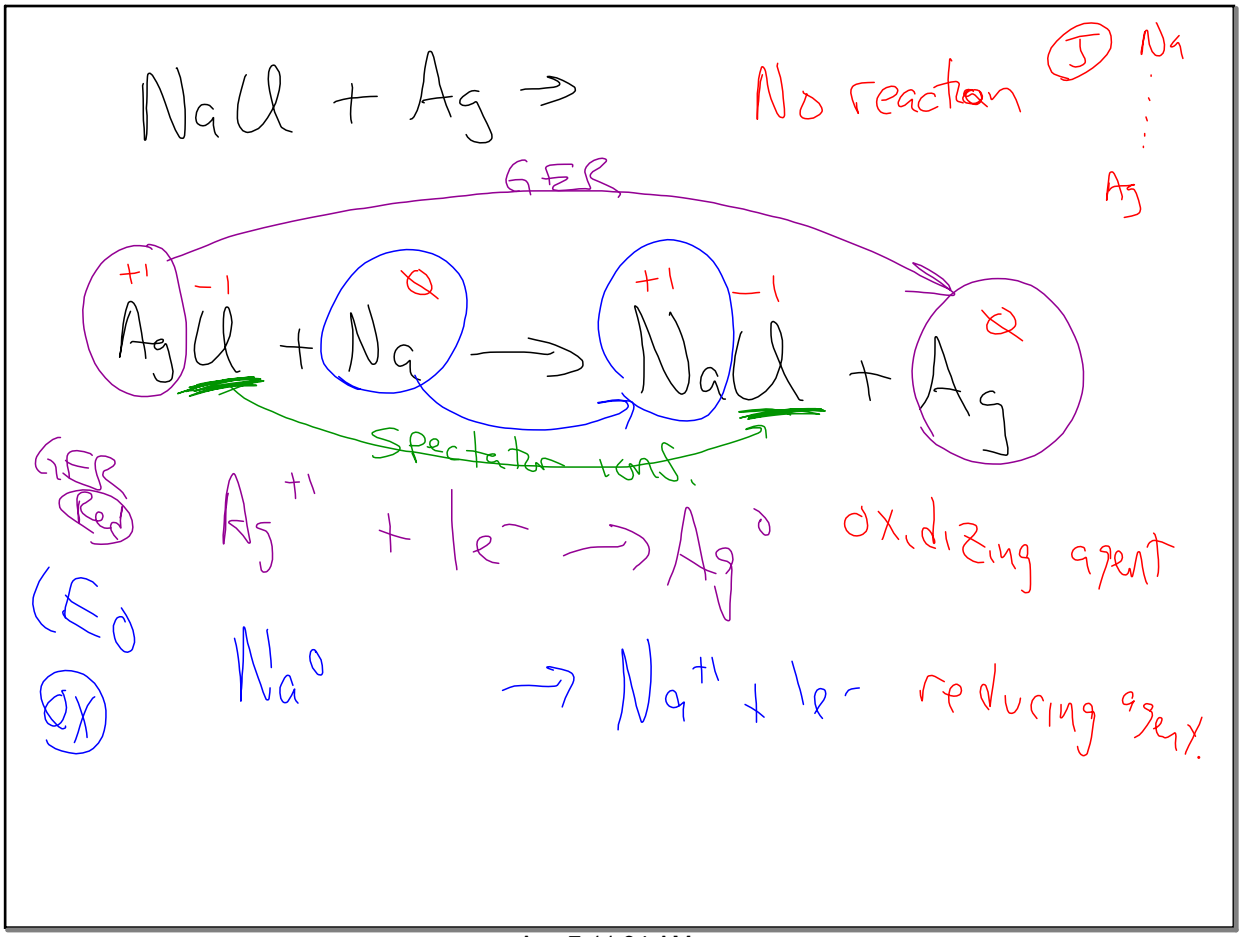

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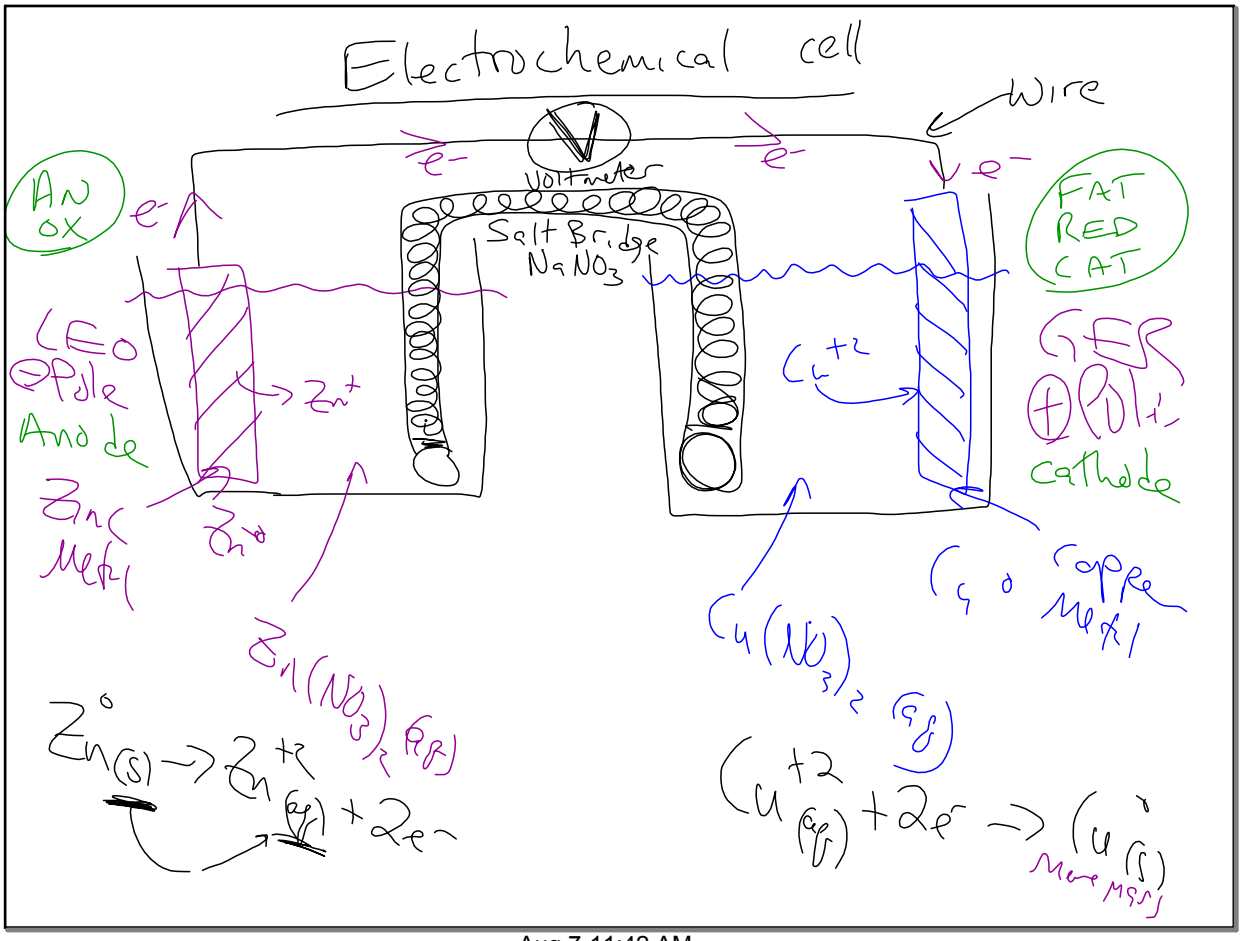

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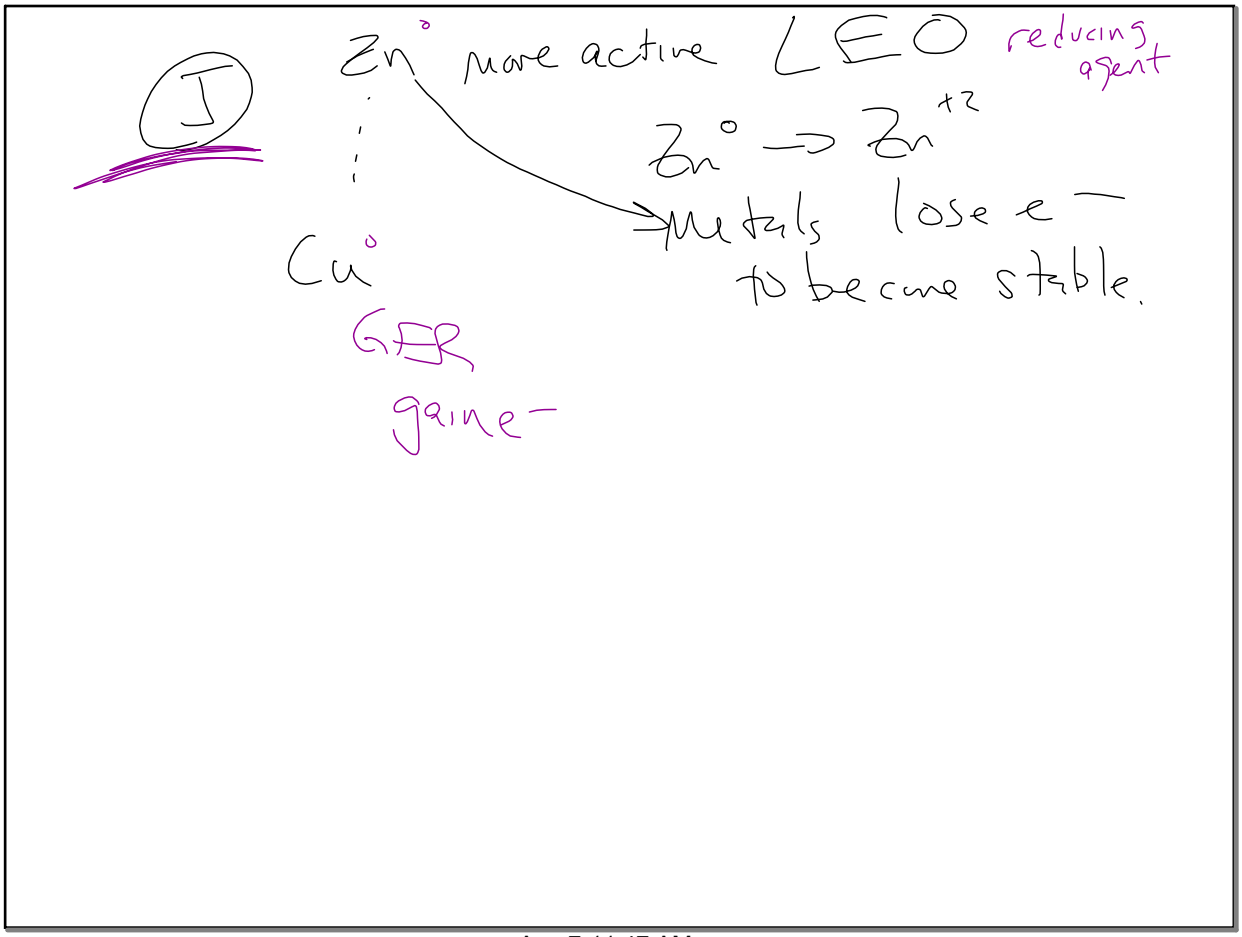

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