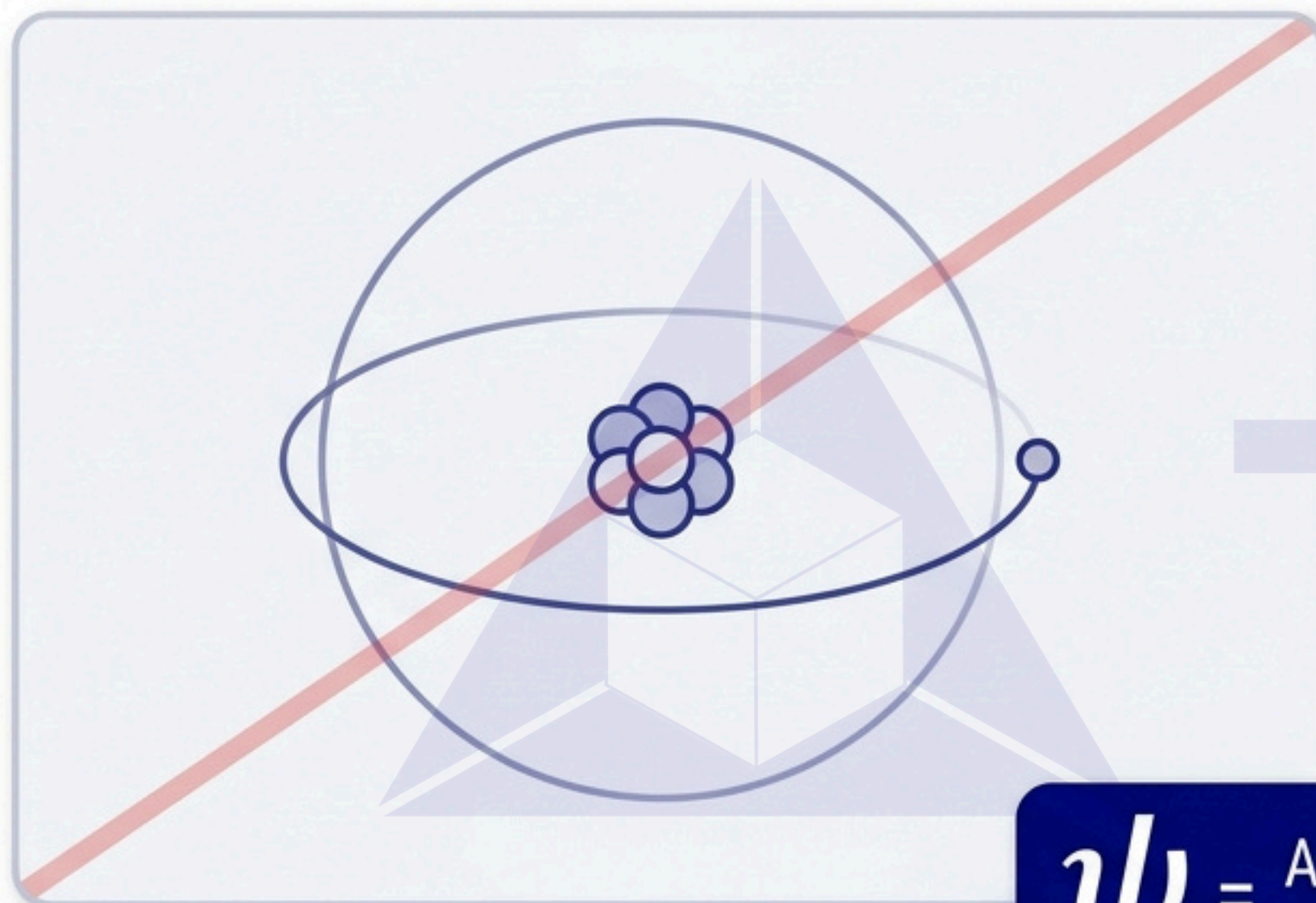
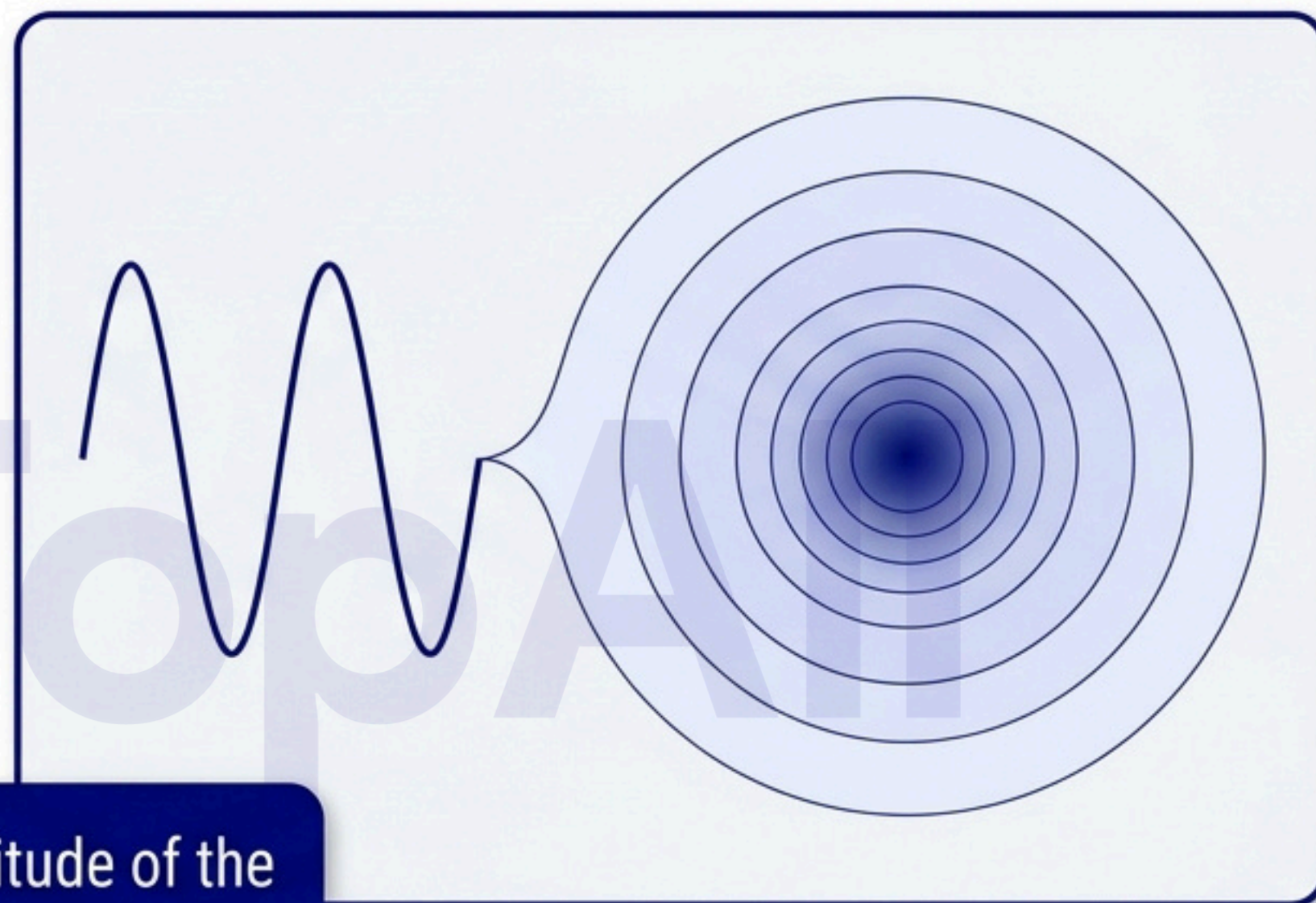


Electrons Are Waves, Not Planets



Classical Particle Model
(Insufficient for Bonding)

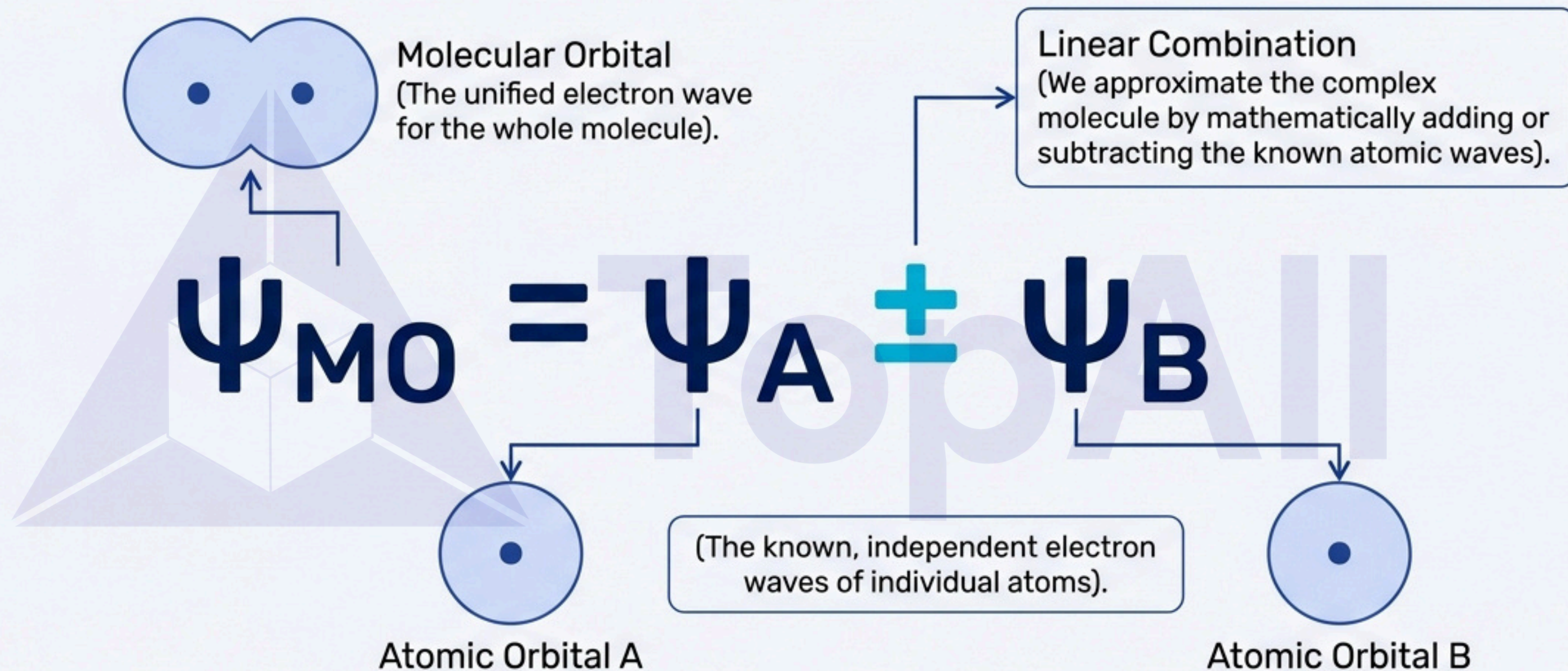
ψ = Amplitude of the
electron wave



Quantum Wave Model
(The Basis of LCAO)

- The Schrödinger wave equation describes the behavior of electrons. We cannot pinpoint an electron; we can only map the amplitude of its wave.
- Because electrons behave as continuous waves, their orbitals can interact, combine, and interfere exactly like physical waves do.

The LCAO Principle: Building Molecules with Math





**You've Learned the Theory.
Let's Test Them Now.**

$$E=mc^2$$



Turn theory into marks with **unlimited MCQs, smart analysis, and focused revision.**

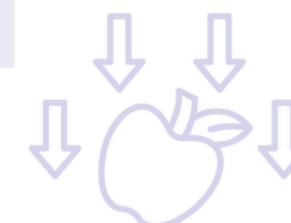
Practice Now



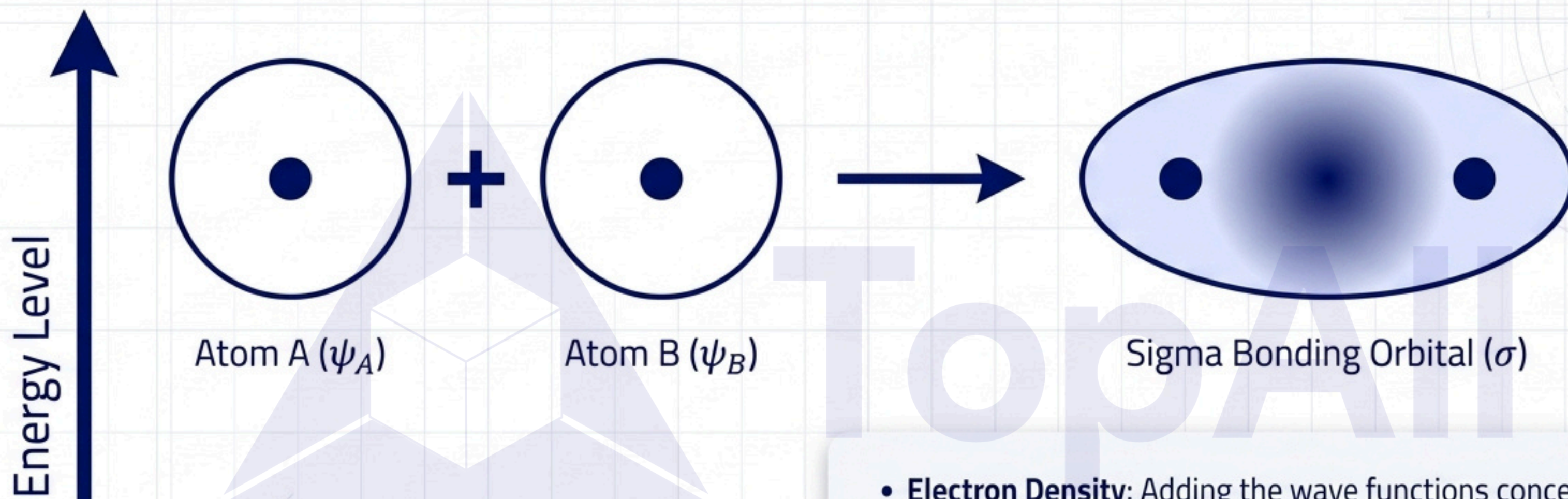
At prep.topall.app

Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter

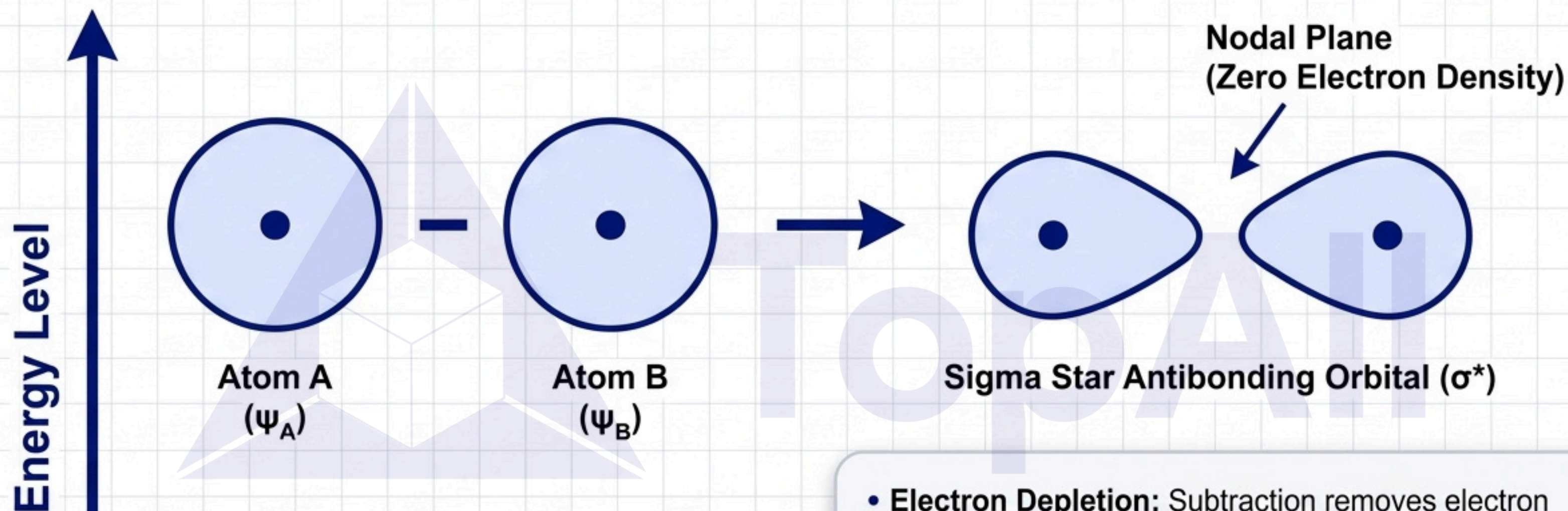


Addition Creates the Bond ($\sigma = \psi_A + \psi_B$)



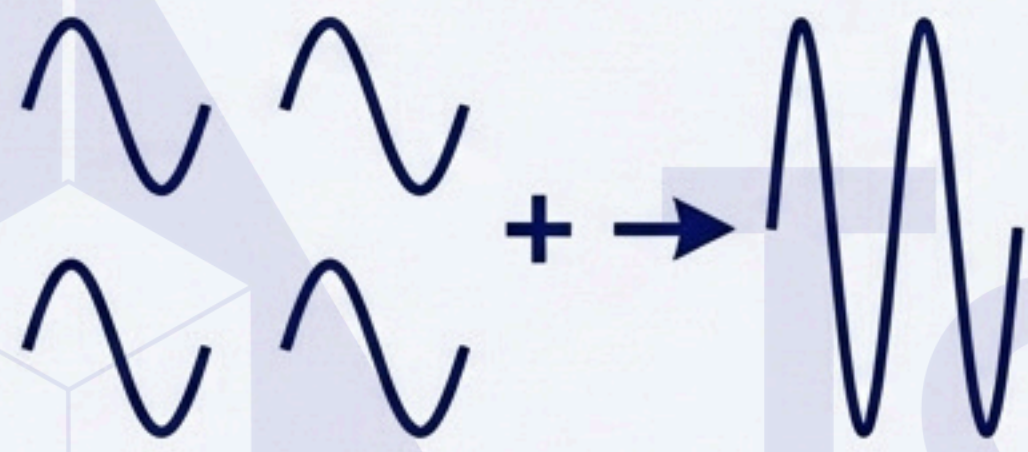
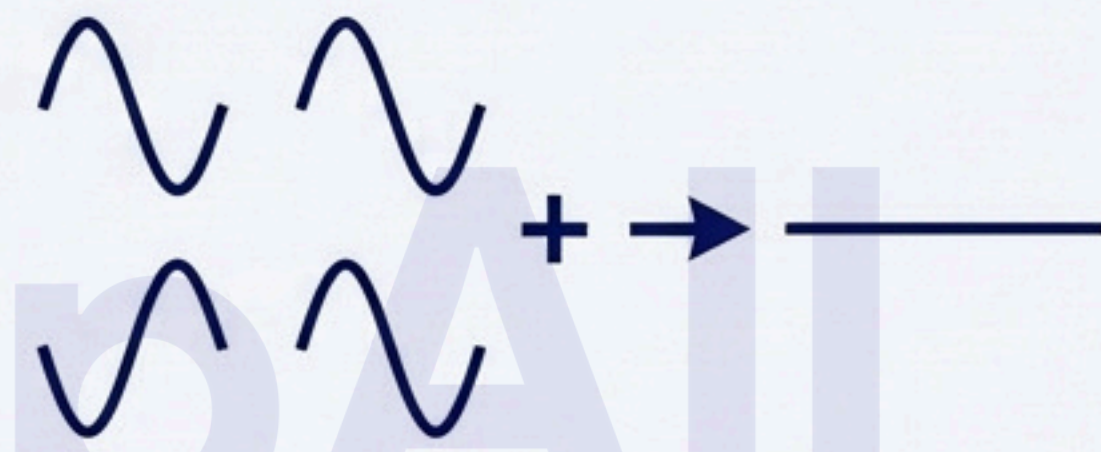
- **Electron Density:** Adding the wave functions concentrates electron density directly between the nuclei.
- **Stabilization:** This dense negative charge acts as a glue, attracting both positive nuclei, overcoming their mutual repulsion, and dropping the molecule into a lower, more stable energy state.

Subtraction Prevents the Bond ($\sigma^* = \psi_A - \psi_B$)

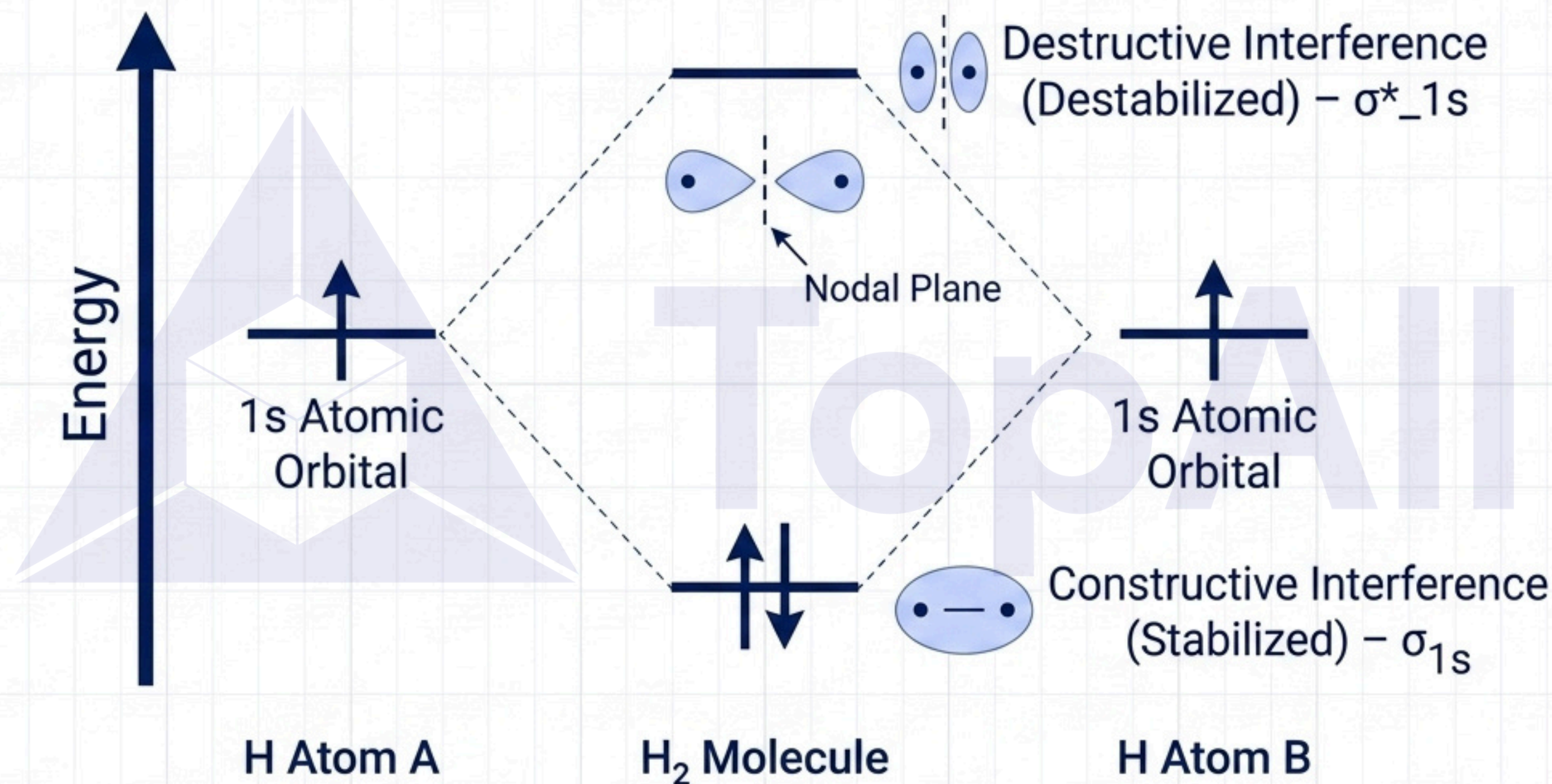


- **Electron Depletion:** Subtraction removes electron density from between the nuclei, creating a node.
- **Destabilization:** Without a negative charge to shield them, the two positive nuclei violently repel each other, driving the system to a higher, unstable energy state.

The Physics: Constructive vs. Destructive Interference

	Constructive Interference (Bonding)	Destructive Interference (Antibonding)
Wave Behavior		
Mathematical Operation	Addition ($\psi_A + \psi_B$)	Subtraction ($\psi_A - \psi_B$)
Electron Density	Waves reinforce each other; density maximizes between nuclei.	Waves cancel each other out; density drops to zero (forming a node).
System Energy	Lowered (Stable)	Raised (Unstable)

Revision Frame: The Complete H₂ Blueprint



$$\text{Bond Order} = \frac{1}{2}(N_b - N_a) = \frac{1}{2}(2 - 0) = 1 \text{ (Stable single bond)}$$



You've Learned the Theory.

Now Let's Test It.

Reading notes gets you knowledge.

Practicing MCQs gets you marks.

That's exactly what TopAll Pro is built for.

Try TopAll Pro Now

What TopAll Pro Does Differently

-  **Stuck? Snap it. Solve it. — Doubts AI**
Photo → step-by-step solution in seconds, 24/7
-  **Your AI Coach finds your blind spots**
Concept-level weakness detection — not just chapter-level
-  **4.5 Lakh+ questions. Never run out.**
13× more content than any other prep app in India
-  **Build your own test in 60 seconds**
Pick a chapter, set difficulty — AI does the rest instantly.
-  **AI Recommendation that helps you improve**
AI Recommendation Analysis your Tests and tell you where you need to improve.



Practice the moment you finish studying
Jump in while the concept is still fresh in your head

4.5L+
MCQs

1.5L+
Students

AI Powered
In-Depth Analysis