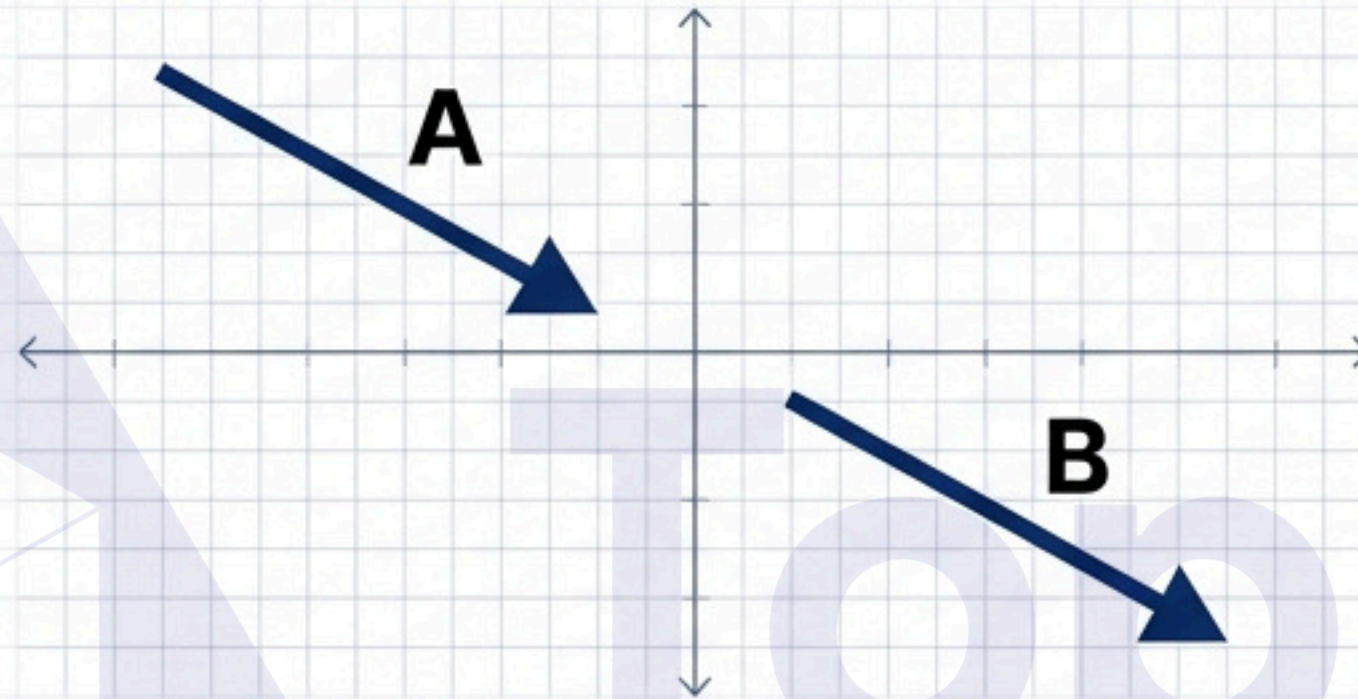


Equality of Vectors

Understanding magnitude, direction, and parallel transport in two dimensions.



When Two Vectors Are Equal



Exact Same Length

The absolute numerical value and unit must be identical.

$$|A| = |B|$$

Exact Same Orientation

The vectors must point in the exact same geometric angle.

$$\theta_A = \theta_B$$

Vectors are equal if, and only if, both magnitude and direction are perfectly matched.



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

$$E=mc^2$$



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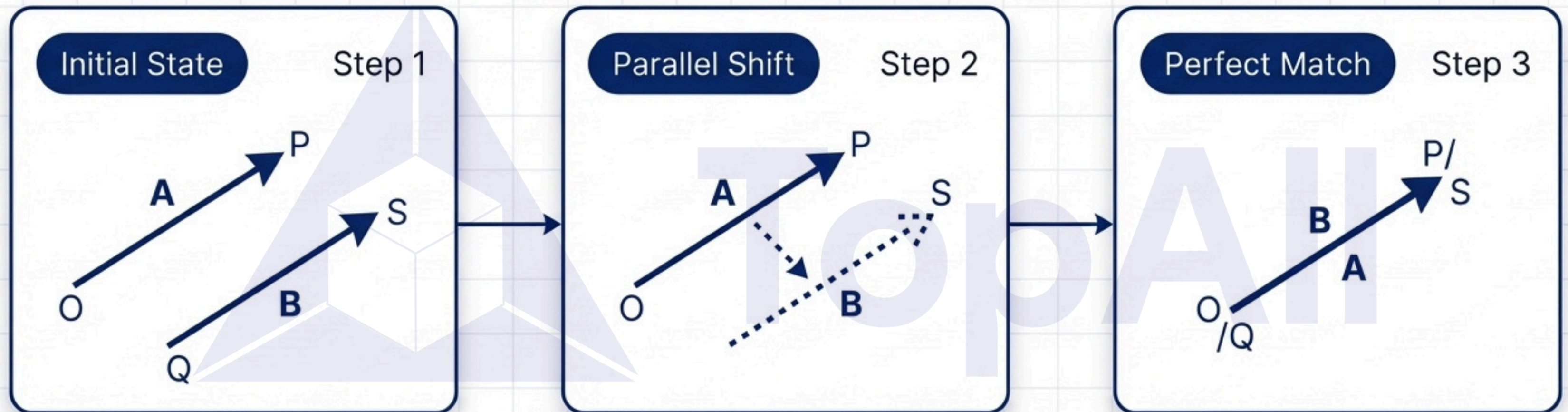
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Key Highlights

- » 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



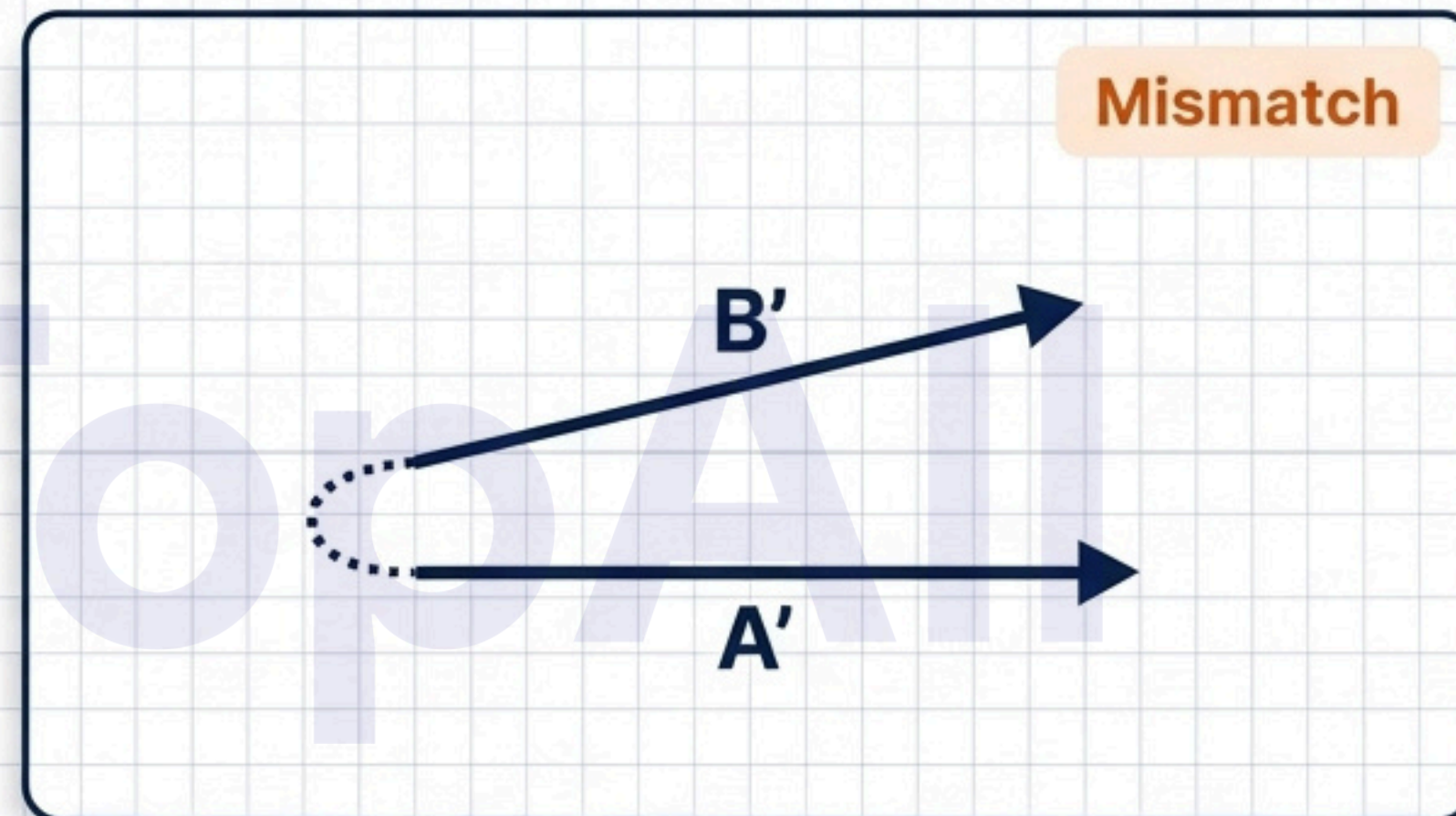
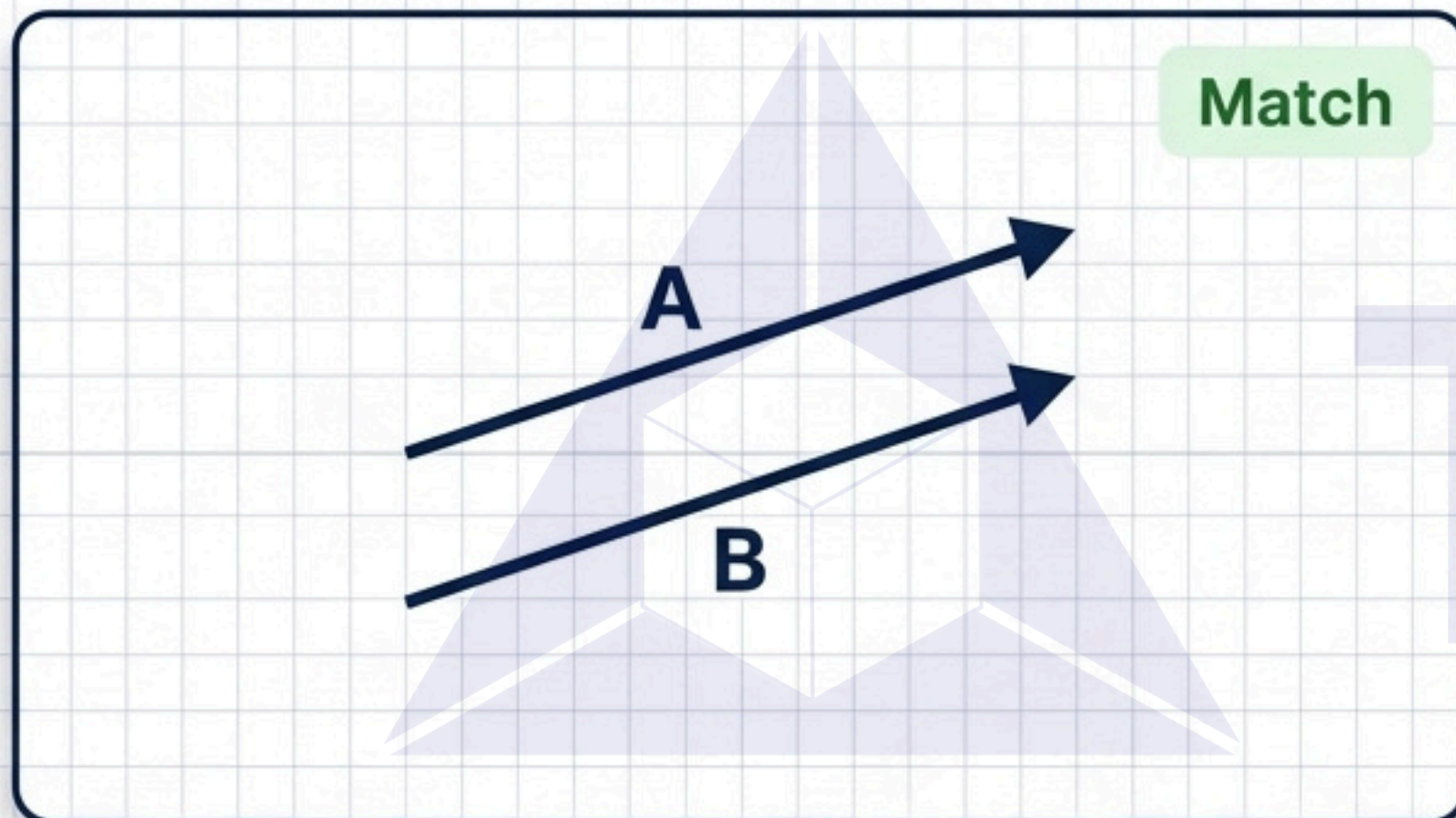
Equal Vector Example



Because **vectors do not** have fixed locations (free vectors), shifting B parallel to itself leaves it unchanged. If the tails and tips perfectly coincide, the vectors are equal.

$$A = B$$

Same Length but Not Equal



Even if we shift **B'** so its tail coincides with **A'**, the tips will not coincide due to differing angles.

$$|A'| = |B'| \text{ but } A' \neq B'$$

Final Recall Slide



Location does not matter for free vectors, direction does.

Displacing a free vector parallel to itself leaves the vector completely unchanged. Always check both length and angle.

To prove equality: check Magnitude AND Direction. Ignore spatial starting coordinates.



You've Learned the Theory.

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