

THE 4C AI TUTOR TEST

Does the tool build independence, or only help complete the work?

USE AFTER ONE
AI-ASSISTED SESSION

For each check, choose **Not yet**, **Sometimes**, or **Yes**. The goal is not a perfect score. It is to see what remains when the AI is gone.

1

COACH BEFORE COMPLETING

Did it ask you to try, then give a hint, question, example, or feedback before the final answer?

TRY: Ask for one hint, then make the tool wait.

☐ NOT YET ☐ SOMETIMES ☐ YES

2

CLOSE THE TOOL

Can you explain the idea or continue the method without looking at the AI response?

TRY: Close it. Write the method from memory.

☐ NOT YET ☐ SOMETIMES ☐ YES

3

CHANGE THE PROBLEM

Can you solve a genuinely different problem, not just the same example with new numbers?

TRY: Change one condition and start again.

☐ NOT YET ☐ SOMETIMES ☐ YES

4

CHECK LATER

Can you still explain the reasoning or solve a fresh problem tomorrow?

TRY: Schedule a two-minute retrieval check.

☐ NOT YET ☐ SOMETIMES ☐ YES

HOW TO READ THE RESULT

Four Yes answers: encouraging evidence of independent use, not proof of durable learning. **Any Not yet:** return to smaller hints and coach-first prompts. **Only the original problem works:** the skill may still be tied to the example.

WHY THIS TEST EXISTS

[1] In a crossover trial with 194 eligible Harvard physics students, a carefully scaffolded tutor supported more learning in less time than two active-learning class sessions. [2] In a separate field experiment with nearly 1,000 Turkish high-school mathematics students, answer-giving GPT-4 raised practice grades 48%, but the later unaided exam score was 17% lower than the no-AI group; teacher-designed guardrails largely removed the harm without a positive unaided-test effect.

Important: These were different settings, not a head-to-head product comparison. The 4C test is a listener-created tool, not a validated diagnostic. Long-term retention, transfer, and unsupervised general-chatbot use remain uncertain.

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