

Unleashing Potential: Integrating Artificial Intelligence to Elevate Math and STEM Education



Louis Shanafelt

Introduction to today's speaker



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Hello, I'm Louis.

Louis Shanafelt

Senior Product Manager

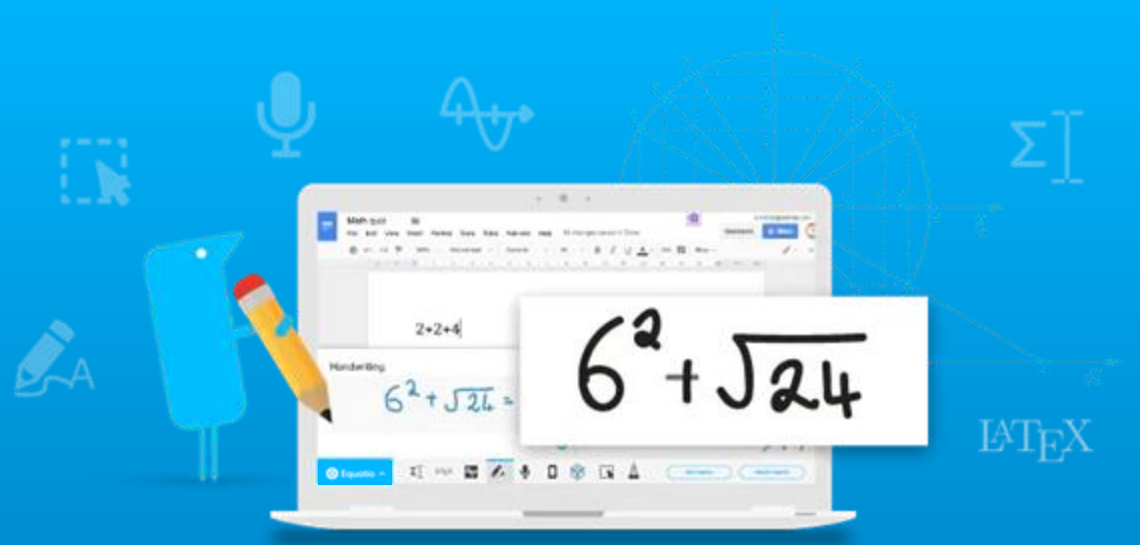
Texthelp



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Make Math Digital

Equatio allows you to create equations, formulas, and more, digitally. Helping to make math and STEM classes more accessible and engaging for every student.

VISION:

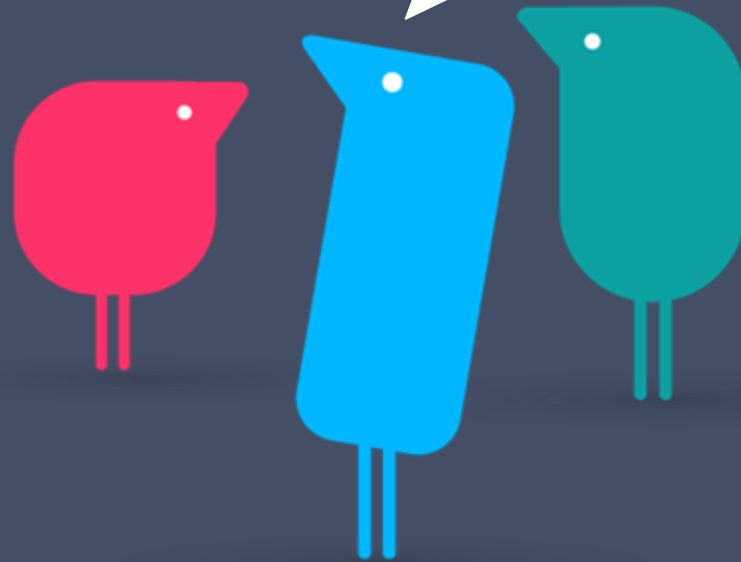
To **disrupt** how math is both taught and learned.

We do this by making it easy to create **digital and accessible** math to work with any learning style or environment.

We are the **math editor of choice** for schools and content creators.



People don't dislike math.
What they dislike is being
confused, intimidated, and
embarrassed by math.



Math fear and anxiety is a big obstacle in the classroom...

61.9%

Considered math fear / anxiety to be one of the biggest obstacles to student learning in math classrooms.

78.7%

Talked about their limited time to modify lessons for different needs.

Accessibility issues are still a prime problem in math education (only 16.3% reported materials were fully accessible) - leading to a lack of math engagement.

Digital Math Can Help

It makes math more accessible and engaging for all learners. But...

44.7%

said they **only** use up to 15 minutes of digital math regularly in their classrooms.

26.6%

highlighted that their **biggest obstacles to implementing** more digital math include:

1. A **lack of time** to learn new skills
2. Digital math being a **new and scary concept**.

But that doesn't mean there's a lack of educator interest in digital math...

67.4%

Believe there is enough scientific evidence to support the transition to digital math and improve the math education for all learners.

79.1%

See the benefit of digital math for saving grading time with quick and flexible feedback options.

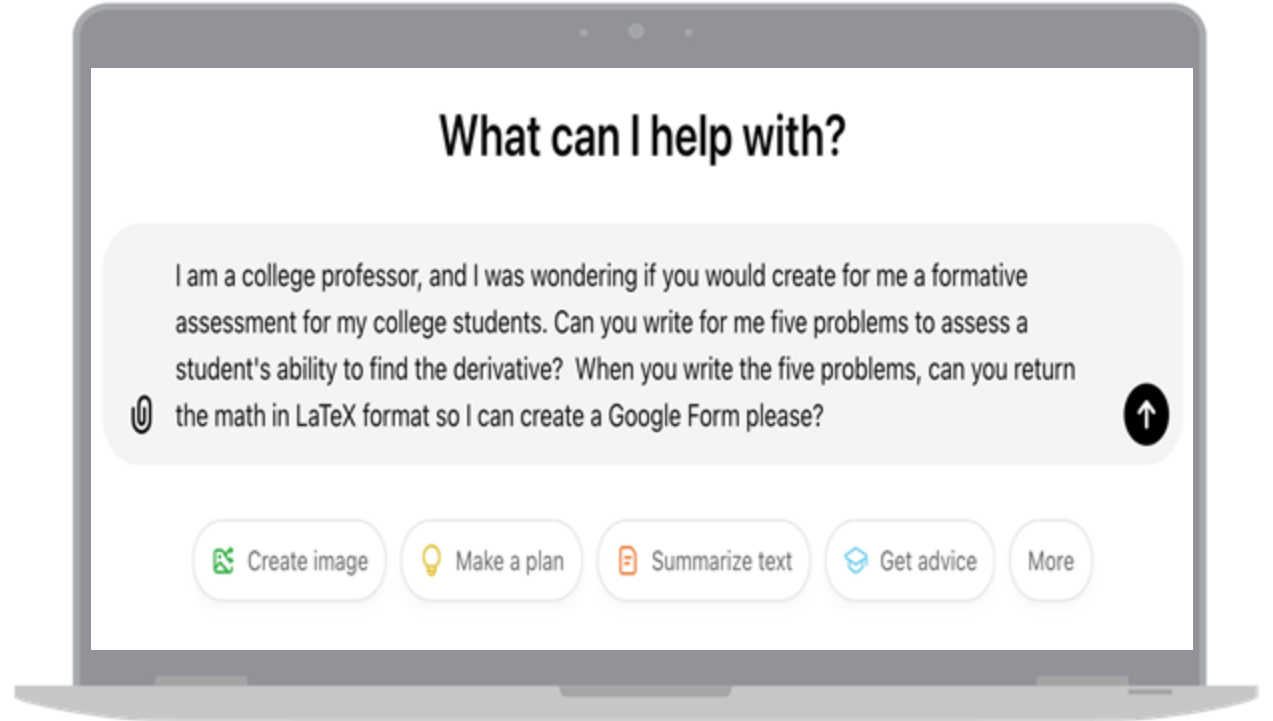
[To Check Out the Full Study Click Here!](#)

Key Point

AI-enhanced assessments can offer dynamic learning paths tailored for student success

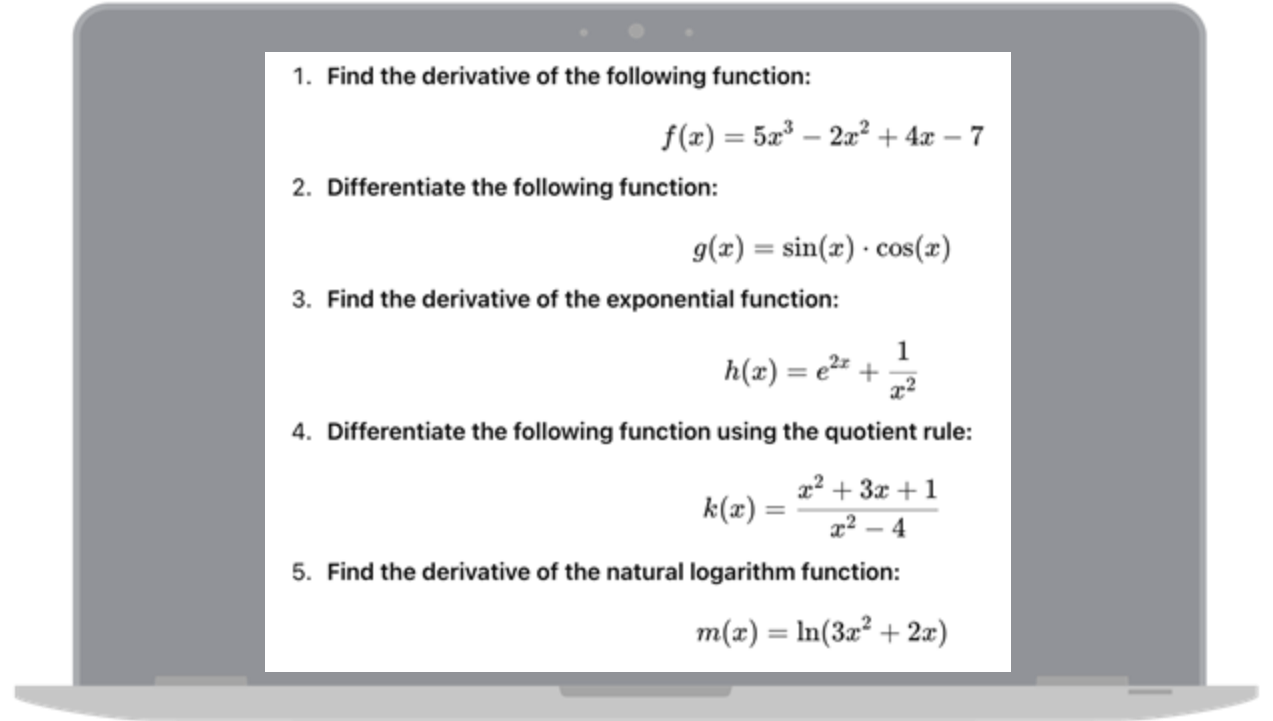
Ask ChatGPT For Help

- Write a prompt but you must be very specific
- Considerations: Who you are, What is the topic, What academic level, Quantity of questions, and Format returned



Chat GPT Results

- AI can return math problems created by AI and include the directions
- At first glance the math doesn't appear to be in LaTeX but when you click and drag, the content copied when pasted will in fact be LaTeX




Find the derivative of the exponential function:

$$h(x) = e^{2x} + \frac{1}{x^2} \quad h'(x) = e^{2x} + \frac{1}{x^2}$$

AI Commonly Utilized For Math Problem Solving Assistance

- What if a product could leverage AI to build Math quizzes and examinations
- Live demo

Forms Creator Experimental ?


 Hi, I'm your Ai Texthelper. Have a look at my sample question below and fill in the boxes to create your own.

" Create 5 multiplying fractions math problems for elementary school students "

Number of Questions (Max: 20)

Topic

Academic Level

Cancel  **Create Google Forms Questions**

Demo Time

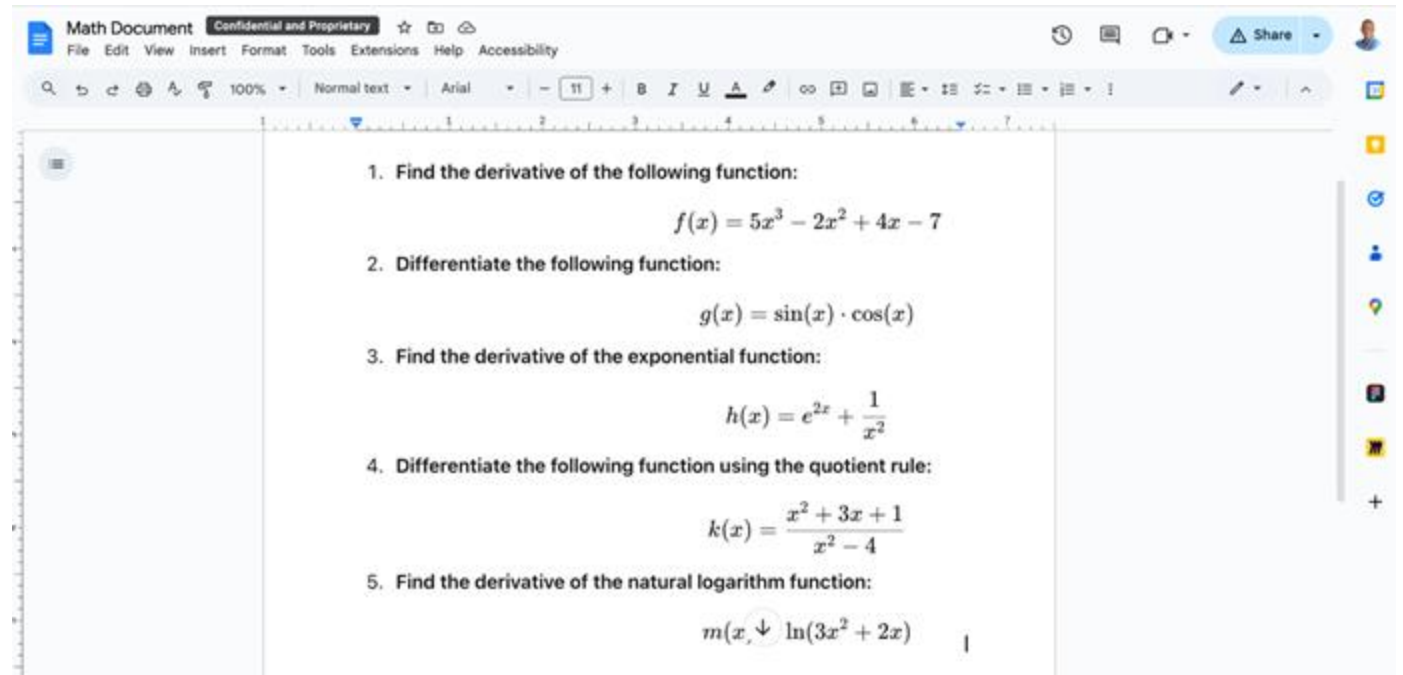


Key Point

AI simplifies math worksheet creation, offering tailored problems, saving time, & enhancing learning outcomes

Again, ChatGPT Can Help

- Write a prompt & be very specific
- Use ChatGPT to create problems that can be added to Docs, PDFs, Word, & more

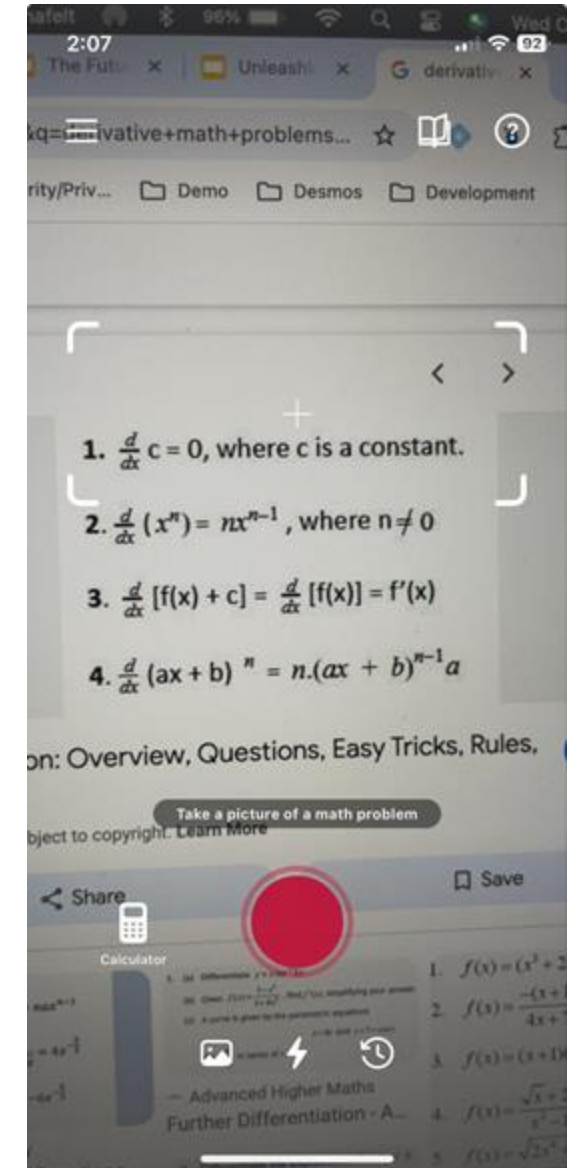
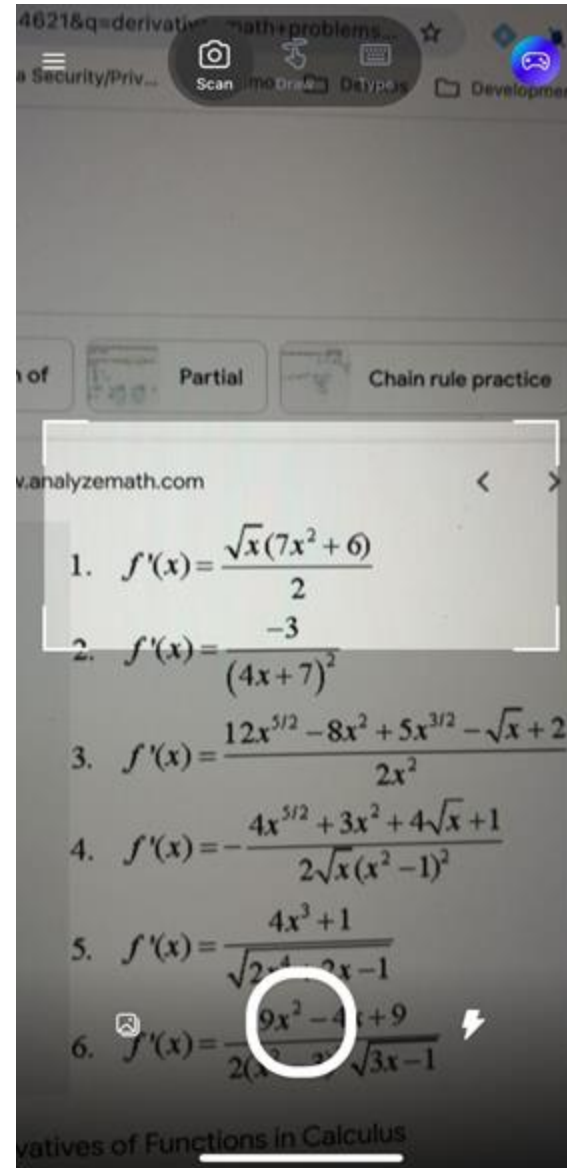


The screenshot shows a Google Docs interface with a document titled "Math Document". The document contains five numbered problems for finding derivatives:

1. Find the derivative of the following function:
$$f(x) = 5x^3 - 2x^2 + 4x - 7$$
2. Differentiate the following function:
$$g(x) = \sin(x) \cdot \cos(x)$$
3. Find the derivative of the exponential function:
$$h(x) = e^{2x} + \frac{1}{x^2}$$
4. Differentiate the following function using the quotient rule:
$$k(x) = \frac{x^2 + 3x + 1}{x^2 - 4}$$
5. Find the derivative of the natural logarithm function:
$$m(x) = \ln(3x^2 + 2x)$$

Using AI As A Math Tutor

- Can AI Enhance Learning Outcomes?
- What Is Available In The Market Today?
 - Microsoft Math Solver App
 - Photomath

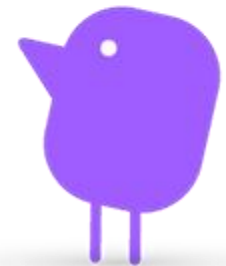


Dare To Be Different

- Stop giving students an easy out
- Point, click, solve, & solution
- Instead, scan the math, let AI return a similar problem, and walk the learner through the proper steps & teach them how to solve for success

The screenshot shows a web application interface for solving math problems. At the top, there is a header with 'Untitled document' and a 'Share' button. The main content area displays a math problem: 'Math problem 1 - $6 + 45 \times 0 + (62 - 8) \times 2 =$ '. Below the problem, there is a toolbar with various icons, including a blue plus sign icon circled in red. A 'Maths' section below the toolbar contains the same math problem. A 'Math Mentor' pop-up window is open on the right, titled 'Math Mentor' and containing the following text: 'learn with this example. Solve: $3 + 0 + (24 - 4) \times 2$ '. The pop-up lists five steps: Step 1. Evaluate the multiplication ($3 + 0 + (24 - 4) \times 2$), Step 2. Evaluate the subtraction inside the parentheses ($3 + 0 + 20 \times 2$), Step 3. Evaluate the multiplication ($3 + 0 + 40$), Step 4. Evaluate the addition ($3 + 40$), and Step 5. Evaluate the final addition (43). At the bottom of the pop-up, there is a disclaimer: '*This is AI, it can make mistakes' and a 'Try another example' button. The bottom of the application features a navigation bar with 'Equatio' and various math symbols, and buttons for 'Edit Maths' and 'Insert Maths'.

Demo Time



Key Point

Students & faculty can streamline math problem solving by inserting LaTeX into AI to bolster comprehension

Increase Math Comprehension By Using LaTeX

- Can your math tool return to you LaTeX
- If so, you can copy that LaTeX and paste it into ChatGPT & ask for assistance in helping to solve the problem

The image shows a workflow for solving a math problem using LaTeX. It is divided into two main sections: a LaTeX editor and a ChatGPT chat interface.

LaTeX Editor: The top section shows a LaTeX editor window. On the left, the LaTeX code is displayed: `\begin{array}{l}\text{Evaluate}\\ \log_{10}10^3\end{array}`. On the right, the rendered output is shown: "Evaluate" followed by $\log_{10} 10^3$. A toolbar with various icons is visible at the top right of the editor.

ChatGPT Interface: The bottom section shows a ChatGPT chat window. The user's input is: "Can you please help me solve the following problem? `\begin{array}{l}\text{Evaluate}\\ \log_{10}10^3\end{array}`". The AI's response is: "To evaluate $\log_{10} 10^3$, you can use the logarithmic identity: $\log_b(b^x) = x$ where b is the base of the logarithm and x is the exponent. In this case, the base $b = 10$, and $x = 3$. Applying the identity: $\log_{10}(10^3) = 3$. So, the value of $\log_{10} 10^3$ is 3." The response includes the mathematical identity and the final answer.

Demo Time



Feedback or Questions

Feedback or questions?



Thank You!



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