

DST type Mines-Ponts 20/2/19 1h30 PSI
Pour faciliter la correction de l'épreuve, les candidats écriront leur texte toutes les deux lignes.
Dans les deux questions de l'exercice d'expression écrite, le candidat indiquera lui-même le nombre de mots employés dans sa réponse. Le non respect des limites indiquées sera sanctionné.

By Siobhan Roberts

Oct. 8, 2026

"If a human did this, it would be an instant Fields Medal, no questions asked."

That's how Alex Kontorovich, chair of the department of mathematics at Rutgers, responded to an A.I.-generated proof that OpenAI, the artificial intelligence giant, released on Tuesday.

And that single proof — worthy, in Dr. Kontorovich's assessment on social media, of arguably the highest honor in the field of mathematics — was just one among more than 350 findings that the firm released that day, all at once. [...]

If there had been any doubt that the leaps achieved by artificial intelligence this year would transform the discipline of mathematics, the tens of thousands of pages let loose on Tuesday have put that doubt to rest. The puzzles apparently conquered by OpenAI include crucial open questions in nearly every subfield of math, including algebra, number theory, theoretical computer science, mathematical logic and topology.

None of the proofs fully resolve any of the five remaining Millennium Prize Problems, which were designated at the turn of the century as a way of celebrating mathematics and its vast frontier of mysteries. But the trove of findings seemed to include results that make tangential or related progress on all of them. Perhaps the most significant result — the one Dr. Kontorovich was responding to — was a proof of the "quasi-Riemann hypothesis," a conjecture related to the best known of the Millennium problems, the Riemann hypothesis, and a possible steppingstone of sorts to its resolution.

Ken Ono, a professor at the University of Virginia and the founding mathematician at Axiom Math, a math-focused artificial intelligence firm, wasn't sure whether the quasi-Riemann solution would be a springboard for solving the original hypothesis. But he said that, as is expected with the original Riemann hypothesis, an encyclopedia of consequences would flow from this result, providing rich fodder for future breakthroughs.

"I imagine many mathematicians, like me, felt like they got punched in the stomach yesterday," Dr. Ono said of Tuesday's turmoil. "But that feeling is quickly giving way to excitement and determination. For those working to push mathematics forward, this is a challenge and an invitation to aim higher."

THEME

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EXPRESSION

Question 1. According to the journalist, why are children striking over climate change? (80 words $\pm$ 10%)

/4

Question 2. Is direct action necessary to fight climate change? Illustrate your answer with relevant examples. (180 words $\pm$ 10%)

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Thème

Dès que je mis le pied dans l'appartement, Mme Jouve se précipita à ma rencontre, toute surexcitée.

- Mais où étiez-vous? On vous cherche depuis des heures. La secrétaire particulière de Mme Pitoëff a appelé deux fois. Elle a fini par transmettre le message que j'ai griffonné ici, tiens, sur un bout de papier.... Demain, à l'heure de la répétition*, vous devez vous présenter à ce théâtre. Mme Pitoëff vous recevra.

Étais-je contente ? Inquiète ? Je ne sais plus trop.

Le lendemain, j'arrivai au théâtre des Pitoëff dans une bien curieuse disposition, éblouie par le fait que Mme Pitoëff voulait bien me recevoir, par ailleurs tourmentée à l'idée de ce qu'il faudrait bien me résoudre à lui avouer.

Elle était en pleine répétition de *La Sauvage* d'Anouilh, auteur qu'elle joua beaucoup aussi, je crois.

Gabrielle Roy, *La Détresse et L'enchantement*, 2014

* répétition = *rehearsal*