

THE WORLD

PRIME NUMBER RECORD BROKEN

41-MILLION-DIGIT PRIME DISCOVERED IN APRIL 2026

On April 12, 2026, the Great Internet Mersenne Prime Search (GIMPS) announced the largest known prime number: $2^{136,279,841} - 1$, with over 41 million digits. The discovery was made by a volunteer using a GPU-powered cloud system. “This is the first record-breaking prime found with AI-assisted distributed computing,” said project leader Dr. Luke Durant.

2	3	5	7	11	13	17	19	23	29	31	37	41	43	47	53	59	61	67	71
73	79	83	89	97	101	103	107	109	113	127	131	137	139	149	151	157	163	167	173
179	181	191	193	197	199	211	223	227	229	233	239	241	251	257	263	269	271	277	281
283	293	307	311	313	317	331	337	347	349	353	359	367	373	379	383	389	397	401	409
419	421	431	433	439	443	449	457	461	463	467	479	487	491	499	503	509	521	523	541
547	557	563	569	571	577	587	593	599	601	607	613	617	619	631	641	643	647	653	659
661	673	677	683	691	701	709	719	727	733	739	743	751	757	761	769	773	787	797	809
811	821	823	827	829	839	853	857	859	863	877	881	883	887	907	911	919	929	937	941
947	953	967	971	977	983	991	997	1009	1013	1019	1021	1031	1033	1039	1049	1051	1061	1063	1069
1087	1091	1093	1097	1103	1109	1117	1123	1129	1151	1153	1163	1171	1181	1187	1193	1201	1213	1217	1223
1229	1231	1237	1249	1259	1277	1279	1283	1289	1291	1297	1301	1303	1307	1319	1321	1327	1361	1367	1373
1381	1399	1409	1423	1427	1429	1433	1439	1447	1451	1453	1459	1471	1481	1483	1487	1489	1493	1499	1511
1523	1531	1543	1549	1553	1559	1567	1571	1579	1583	1597	1601	1607	1609	1613	1619	1621	1627	1637	1657
1663	1667	1669	1693	1697	1699	1709	1721	1723	1733	1741	1747	1753	1759	1777	1783	1787	1789	1801	1811
1823	1831	1847	1861	1867	1871	1873	1877	1879	1889	1901	1907	1913	1931	1933	1949	1951	1973	1979	1987
1993	1997	1999	2003	2011	2017	2027	2029	2039	2053	2063	2069	2081	2083	2087	2089	2099	2111	2113	2129
2131	2137	2141	2143	2153	2161	2179	2203	2207	2213	2221	2237	2239	2243	2251	2267	2269	2273	2281	2287
2293	2297	2309	2311	2333	2339	2341	2347	2351	2357	2371	2377	2381	2383	2389	2393	2399	2411	2417	2423
2437	2441	2447	2459	2467	2473	2477	2503	2521	2531	2539	2543	2549	2551	2557	2579	2591	2593	2609	2617
2621	2633	2647	2657	2659	2663	2671	2677	2683	2687	2689	2693	2699	2707	2711	2713	2719	2729	2731	2741
2749	2753	2767	2777	2789	2791	2797	2801	2803	2819	2833	2837	2843	2851	2857	2861	2879	2887	2897	2903
2909	2917	2927	2939	2953	2957	2963	2969	2971	2999	3001	3011	3019	3023	3037	3041	3049	3061	3067	3079
3083	3089	3109	3119	3121	3137	3163	3167	3169	3181	3187	3191	3203	3209	3217	3221	3229	3251	3253	3257
3259	3271	3299	3301	3307	3313	3319	3323	3329	3331	3343	3347	3359	3361	3371	3373	3389	3391	3407	3413
3433	3449	3457	3461	3463	3467	3469	3491	3499	3511	3517	3527	3529	3533	3539	3541	3547	3557	3559	3571






TOP STORIES · APRIL 2026

- **US AI solves geometry at gold-medal level** — DeepMind's AlphaGeometry2 surpasses human Olympiad champions.
- **FR Fields Medal 2026 shortlist** — Four mathematicians recognised for breakthroughs in number theory and dynamical systems.
- **JP Ancient Greek problem solved** — After 2000 years, Archimedes' "ostomachion" yields new theorem.
- **CA Mathematical model predicts cancer evolution** — University of Toronto uses branching processes to forecast mutations.

*Numbers dance in silent grace,
Solving riddles of time and space.
From zero's void to infinity's song,
In every equation, we belong.*

HOW MATH SHAPES OUR WORLD (April 2026)

From climate science to space exploration — mathematics drives modern civilisation. Here are real-world breakthroughs from this month:

Field	April 2026 Breakthrough
 Climate Science	New PDE models improve hurricane track prediction by 40% (NOAA).
 Medicine	Topological data analysis detects early Alzheimer's from brain scans.
 Space Exploration	ESA uses Kalman filters for asteroid deflection mission (Hera).
 Communications	6G prototype relies on polar codes — error correction mathematics.
 Entertainment	Procedural generation in "Light No Fire" uses fractal algorithms.

Spider webs inspire acoustic sensors

April 5, 2026 — Cornell University — New research confirms that orb-weaving spiders mathematically tune silk tension to detect vibrations. This bio-inspired principle is now being used to design ultra-sensitive microphones for hearing aids. "Nature's geometry is flawless," said lead author Dr. S. Rodriguez.

GLOBAL MATH FACTS (April 2026)

- π has been calculated to 105 trillion digits.
- The Riemann Hypothesis remains unsolved — \$1 million prize.
- Worldwide, 1.5 million students participate in the International Math Olympiad selection process this month.

"Epidemiology without mathematics is like astronomy without telescopes." — Dr. Adam Kucharski, on new pandemic modelling released April 2026.

HOW MATHEMATICS SAVED LIVES

During the COVID-19 pandemic, mathematical epidemiologists used **SEIR models** (Susceptible-Exposed-Infectious-Recovered) to forecast waves. In April 2026, the World Health Organization released a retrospective analysis: accurate modelling reduced excess deaths by an estimated 2.1 million globally. Today, real-time modelling continues for influenza, RSV, and emerging pathogens.



▢ Mathematics of mRNA vaccines

The development of mRNA vaccines (Pfizer/BioNTech, Moderna) would have been impossible without linear algebra, graph theory, and machine learning. Researchers at MIT and Harvard used advanced optimisation algorithms to stabilise lipid nanoparticles — a mathematical breakthrough that saved millions of lives.

✈ VACCINE NUMBERS (Worldwide, April 2026 update)

- Over 14.2 billion COVID-19 vaccine doses administered.
- mRNA vaccines rely on bioinformatics & codon optimisation — applied combinatorics.
- Herd immunity thresholds: calculated via R_0 (basic reproduction number).
- New universal flu vaccine designed using computational protein folding.

🧠 THE LIMIT OF HUMAN MEMORY

According to cognitive science (updated April 2026), the average person can hold only **3–4 items** in working memory. Without memory aids, those items vanish after about 20 seconds. Mathematicians use chunking to remember long formulas.

📖 DID YOU KNOW? (April 2026)

- "Strengths" is the longest English word with one vowel.
- The letter "Q" does not appear in any U.S. state name.
- Air isn't mostly oxygen — it's 78% nitrogen.
- Bubble wrap was originally invented as wallpaper.

Three different kinds of exam takers

😬 The Worrier | 😊 The Planner | 🤖 The Crammer

Mathematical Limerick

*A dozen, a gross, and a score,
Plus three times the square root of four,
Divided by seven,
Plus nine times eleven,
Is five squared and not one bit more.
(Answer: 100)*

🎮 Video games & mathematics

April 2026 — BBC Radio 4 adapts "Splinter Cell" as an audio drama. Behind every game: vector calculus (3D rendering), linear algebra (transformations), and Monte Carlo simulations. "Game engines are applied mathematics," says producer Andonis Anthony.

📐 GAME MATH FACTS

- Ray tracing uses Monte Carlo path tracing.
- Minecraft uses Perlin noise (mathematical function).
- Inverse kinematics in FIFA / EA Sports.



FIELDS MEDAL 2026: WHO WILL WIN?

The International Congress of Mathematicians (ICM 2026) will take place in July in Philadelphia. According to April 2026 speculation, four leading candidates include a breakthrough in **Langlands program**, a new proof in **low-dimensional topology**, and advances in **random matrix theory**. The Fields Medal, often called the "Nobel Prize of mathematics", is awarded every four years.

"Mathematics is the music of reason." — James Joseph Sylvester

April 2026: Mathematics without borders

On April 23, the "Science without Borders" program connected young mathematicians from Belarus, Kazakhstan, and Poland via videoconference. Students discussed applications of machine learning in pure mathematics. The event was organised under the Eurasian National University partnership.

UPCOMING (Spring 2026)

- International online Olympiad in Combinatorics — registration open.
- Summer math school in Budapest — applications being accepted.
- GSU faculty preparing for joint webinar with EPAM Systems.

Best Wishes for Spring 2026

"May your derivatives be positive and your integrals converge."

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