

S03E13 - 2025 As a Mathematical Concept

The Multiverse Employee Handbook - Season 3

The Multiverse Employee Handbook has this to say about Numbers:

They are humanity's preferred method for making the universe sit still long enough to be counted.

At first glance, numbers appear reassuring. They line up neatly, behave predictably, and give the comforting impression that reality can be summarized with sufficient decimal places. This is largely a misunderstanding. Numbers do not describe the universe so much as negotiate with it, arriving at temporary agreements that hold until something starts accelerating, decaying, or being observed too closely.

Dates, in particular, are numbers doing administrative cosplay. The year **2025**, for example, feels important only because humans agreed it should, having anchored it—somewhat arbitrarily—to a biblical calendar, a sequence of councils, corrections, and collective nodding. To the universe, it is not a milestone, a threshold, or a fresh start. It is merely another rotation count performed by a planet that enjoys naming things. The cosmos does not celebrate anniversaries. It continues, politely ignoring the fact that everyone has decided this number should mean something.

The Handbook notes that numbers were invented not because the universe required them, but because humans needed a way to agree on when now ended and infinity began. Since then, numbers have been used to measure distances between galaxies, probabilities of outcomes, and the exact number of spam emails required before one starts ignoring their inbox. They are impartial, unemotional, and deeply judgmental.

Strangely, the universe seems perfectly comfortable without them. Stars form without counting. Time passes without indexing itself. Entropy increases with no regard for significant figures. And yet, humans persist—assigning numbers to everything in the hope that doing so will make it behave. Sometimes it does. Sometimes it invents imaginary numbers just to be difficult.

In summary, numbers are not truths. They are coping mechanisms. They allow a small species on a modest planet to point at the infinite and say, with cautious confidence, "approximately this."

You're tuned into The Multiverse Employee Handbook.

Today, we're exploring the number 2025—not as a calendar year where things happened to humans, but as a mathematical entity that has quietly inserted itself into textbooks, problem sets, and blackboard demonstrations worldwide, using nothing but impeccable structure and the mathematical equivalent of being really, really good at its job.

It's 45 squared. It's the sum of the first nine cubes. It's triangular, it's square, and it's the kind of number that makes algebraists smile for reasons they struggle to explain to non-mathematicians.

But first, gather 'round the number theory department, dear arithmetically-inclined colleagues, for a cautionary tale of numerical identity crisis and the politics of mathematical importance.

In the fluorescent-lit realm of Quantum Improbability Solutions, specifically in the Department of Mathematical Significance Assessment—which existed in a superposition of “arbiter of numerical importance” and “bureaucracy with calculators”—the number Two Thousand and Twenty-Five was having what could charitably be called an existential validation crisis.

It had started, as these things often do, with an application form.

The Department had announced openings for the prestigious designation of “Historically Important Number,” a classification that came with placement in undergraduate textbooks, mandatory inclusion in mathematical history courses, and a dedicated Wikipedia page that wouldn't get flagged for deletion every six months.

Two Thousand and Twenty-Five had submitted its application immediately.

The interview panel consisted of some truly intimidating figures. Pi sat at the head of the table, looking infinitely smug. The number e lounged nearby with the casual confidence of something that appears in calculus whether you want it to or not. The number zero occupied a seat with the quiet authority of having invented placeholder notation. And the number one sat... well, by itself. Fundamental. Indivisible. Insufferably essential.

“Right then,” said the Square-Haired Boss, whose geometric perfection somehow made him the ideal chair for a mathematics committee. “Applicant Two Thousand

and Twenty-Five. Please state your case."

Two Thousand and Twenty-Five cleared its throat nervously. "Well, I'm forty-five squared. That's a perfect square, which is—"

"We have many perfect squares," interrupted Pi. "What makes you special?"

"I'm also the sum of the first nine cubes! One cubed plus two cubed plus three cubed all the way up to nine cubed equals me. That's the canonical example of one of mathematics' most elegant identities!"

The number e looked unimpressed. "So you're... pedagogically convenient?"

"Not just convenient! I'm the ninth triangular number, squared! I'm both triangular AND square simultaneously! That's extremely rare!"

There was a pause. Zero leaned forward. "How rare, exactly?"

"Well... there are infinitely many of us, technically. But we're spaced out very far apart! The next one is Thirty-Six Thousand, One Hundred and Ninety!"

"So you're... the smallest multi-digit example of a phenomenon that continues forever?" One asked, somehow managing to make this sound like an accusation.

Two Thousand and Twenty-Five rallied. "My prime factorization is three to the fourth power times five squared! That's incredibly clean! Even exponents only! I'm algebraically friendly!"

"Friendly," Pi repeated, with the tone of someone who had transcended the need for friends by being literally infinite and non-repeating.

"Look," Two Thousand and Twenty-Five said, trying a different approach, "I appear in textbooks. Constantly. When professors need to demonstrate modular arithmetic, I'm there. When students need to factor something that won't misbehave, I'm there. When—"

"You're the number they use when they need something that won't cause problems," e finished. "You're reliable."

"Exactly! Reliable!"

The Square-Haired Boss consulted his notes. "The committee recognizes that you possess admirable structural properties. However, the designation of 'Historically Important Number' is reserved for integers that have fundamentally altered

mathematical understanding. Pi here unified geometry and trigonometry. E revolutionized calculus. Zero changed... well, everything. One is foundational by definition."

"What about that number over there?" Two Thousand and Twenty-Five pointed desperately at a number lurking in the corner. "Seventeen Twenty-Nine! It's just the sum of two cubes in two different ways! That's its entire claim to fame!"

"Ah, but Seventeen Twenty-Nine became famous through Ramanujan," Pi explained. "Historical anecdote counts for a lot. Are you involved in any famous mathematical stories?"

"I'm... in the year Twenty Twenty-Five! That's happening right now!"

"That's a calendar coincidence, not mathematical significance," Zero said, not unkindly. "You're being observed by humans because they count years. That's not your fault, but it's not your achievement either."

Two Thousand and Twenty-Five slumped. "So what am I supposed to be? Just... pedagogically useful? The number professors reach for when they need a nice example?"

"Well," said One, speaking for the first time with any warmth, "is that not valuable? I'm foundational, yes. But I'm also boring. E is revolutionary but exhausting to calculate with. Pi literally never ends, which, frankly, gets tiresome."

"You," One continued, "are the number that makes mathematics teachable. You demonstrate principles without introducing complications. You're the worked example that makes sense. You're the number that helps humans understand the rest of us."

"The reliable colleague," added e. "The one who makes everyone else's work easier."

The Square-Haired Boss cleared his throat. "The committee has reached a decision. Application for 'Historically Important Number' status: Denied."

Two Thousand and Twenty-Five's digits visibly sagged.

"However," the Boss continued, "we are creating a new designation: 'Exemplary Structural Integer, First Class.' This category recognizes numbers whose excellence lies not in revolutionary discovery but in consistent, reliable demonstration of mathematical principles."

"You're the first recipient," Zero added. "Congratulations."

Two Thousand and Twenty-Five processed this. "So I'm... important for being well-behaved?"

"You're important for being exactly what mathematics needs when it's trying to explain itself," Pi said. "Which is, if we're honest, most of the time."

And so Two Thousand and Twenty-Five left the Department of Mathematical Significance Assessment with a designation that wouldn't get it into history books' dramatic moments, but would ensure its appearance in textbooks' crucial examples.

Which, as the number itself quietly reflected, was perhaps more useful than being infinite, irrational, or historically pivotal.

After all, someone had to be the number that actually worked when called upon.

Someone had to be reliable.

And that brings us to the fascinating mathematics behind two thousand and twenty-five. Unlike numbers that changed history through dramatic counterexamples or fundamental constants, two thousand and twenty-five achieves importance through something subtler: structural perfection.

Two thousand and twenty-five equals forty-five squared. Its prime factorization is three to the fourth power times five squared—all even exponents. This balanced structure makes it algebraically friendly, behaving predictably in equations without introducing complications.

But here's the elegant part: two thousand and twenty-five is also one cubed plus two cubed plus three cubed, all the way up to nine cubed. Take every whole number from one to nine, cube each one, add them together—you get exactly two thousand and twenty-five. This demonstrates one of mathematics' most beautiful identities, and two thousand and twenty-five is its canonical textbook example.

There's more. Forty-five itself is the ninth triangular number, so two thousand and twenty-five is a triangular number squared. These "square triangular numbers" are remarkably rare—the next one doesn't appear until thirty-six thousand, one hundred and ninety.

This is structural beauty. Two thousand and twenty-five doesn't prove theorems or unlock new fields. But it possesses perfect internal architecture. It's the number professors reach for when they need an example that won't misbehave.

In mathematics, that's not consolation—that's genuine excellence.

When we return, we'll explore what makes a number "important" versus "interesting," and meet other numbers that achieved significance through structural elegance rather than historical drama. We'll discover that mathematics values both revolutionary breakthroughs and reliable tools—and sometimes, being impeccably well-behaved is exactly what the field needs.

Welcome back, my numerically discriminating colleagues!

Now, you might have noticed we're currently living through the year twenty twenty-five—a calendar designation humans invented by counting rotations around the sun since an agreed-upon starting point. That's culturally significant, certainly, but mathematically? It's arbitrary. The number two thousand and twenty-five existed long before we decided to label this particular orbit with it.

What makes the number itself interesting has nothing to do with calendars and everything to do with internal structure.

We've already established that two thousand and twenty-five is forty-five squared, and that it equals the sum of the first nine cubes. *This is not common behaviour and should not be encouraged.* But let's explore why mathematicians care about these properties beyond just "that's neat."

Prime factorization—breaking numbers down to their building blocks—reveals character. Two thousand and twenty-five factors as three to the fourth power times five squared. Those even exponents aren't decorative. They're the reason this number behaves so predictably in algebra—an entire branch of mathematics devoted to solving equations with unknown values.

When you're working with variables—those x's and y's from school—having numbers with clean, even exponents means equations simplify instead of exploding into complexity. Two thousand and twenty-five is what mathematicians call "friendly." Not anthropomorphically friendly, but computationally cooperative.

Square triangular numbers—numbers that are both perfect squares and triangular—are genuinely rare. After two thousand and twenty-five, the next one is thirty-six

thousand, one hundred and ninety. Then two hundred and eighty-eight thousand, one hundred and twenty. The gaps grow exponentially. Finding numbers that satisfy multiple geometric patterns simultaneously ...*and who somehow enjoy both*, is like finding employees who excel at completely different job descriptions—unusual and valuable.

Here's the corporate analogy: two thousand and twenty-five is the structural engineer, not the visionary architect. The architect who designed the ISS got their name in history books. The engineers who ensured the life support systems worked reliably for twenty-five years? Less famous, equally essential.

Revolutionary numbers— π , e , imaginary numbers—opened entirely new fields of mathematics. They caused philosophical crises and paradigm shifts. Two thousand and twenty-five never caused a crisis. It demonstrates existing principles with perfect clarity, which is precisely why it appears in textbooks across centuries.

Medieval Islamic mathematicians studied the sum of cubes identity. Seventeenth-century Europeans explored figurate numbers extensively. But two thousand and twenty-five became the canonical example because it occupies a pedagogical sweet spot—complex enough to be meaningful, simple enough to calculate by hand.

Mathematics values both revolution and reliability. Two thousand and twenty-five represents the latter, proving that excellence doesn't require upheaval. Sometimes the most valuable contribution is being exactly what's needed, consistently, without introducing additional problems.

In a field as abstract as mathematics, that's not just acceptable—it's essential infrastructure. *Which, historically, is only noticed when it fails.*

So two thousand and twenty-five isn't alone in the Department of Structurally Excellent Integers. It has colleagues—other numbers that achieved significance not through revolution, but through being exactly what mathematics needed in specific circumstances.

Let's start with seventeen twenty-nine, perhaps the most famous "unremarkable" number in mathematics. It became legendary because of a taxi ride. The mathematician Srinivasa Ramanujan was ill in hospital when his colleague G.H. Hardy visited. Hardy mentioned his taxi number—seventeen twenty-nine—and apologized for bringing such a dull number to a mathematician's attention.

Ramanujan immediately replied: "No, it is a very interesting number. It is the smallest number expressible as the sum of two cubes in two different ways."

He'd just calculated this in his head. Seventeen twenty-nine equals one cubed plus twelve cubed. It also equals nine cubed plus ten cubed. Same number, two completely different cube combinations. That's not mathematically foundational—it's just delightfully weird. Like two thousand and twenty-five, it's structurally interesting rather than revolutionary. But now every mathematician knows it, purely because of that anecdote.

Then we have the perfect numbers: six, twenty-eight, four ninety-six. These equal the sum of their proper divisors—all the numbers that divide into them evenly, excluding themselves. Six equals one plus two plus three. Twenty-eight equals one plus two plus four plus seven plus fourteen. They're perfectly self-contained, like departments that balance their own budgets without requiring external intervention. Ancient Greeks knew about these, and we're still discovering new ones. They're connected to Mersenne primes—a whole other category of peculiar numbers—and remain somewhat mysterious despite twenty-five hundred years of study.

Speaking of categories, two thousand and twenty-five belongs to what we call figurate numbers—numbers that can be arranged as geometric shapes. Triangular numbers form triangles of dots. Square numbers form squares. Pentagonal numbers form pentagons. Two thousand and twenty-five is simultaneously triangular AND square, which is like having dual citizenship in mathematical geometry.

Now, sixty-one seventy-four. This is Kaprekar's constant, named after the Indian mathematician who discovered it in nineteen forty-nine. Take any four-digit number with at least two different digits. Arrange those digits in descending order, then ascending order, and subtract the smaller from the larger. Repeat this process. Within seven steps maximum, you'll always reach sixty-one seventy-four. Always. It's a numerical black hole—everything gets pulled toward it. Discovered entirely by accident, now used constantly to demonstrate convergence in mathematics education. Like two thousand and twenty-five, it's pedagogically invaluable despite not being foundational.

There are also highly composite numbers—numbers with more divisors than anything smaller than them. Twelve is highly composite: it's divisible by one, two, three, four, six, and twelve. This is why we have twelve inches in a foot, twelve months, sixty minutes—these numbers cooperate well with fractions. They're optimized for collaboration, the ultimate team players of arithmetic.

And finally, Catalan numbers—a sequence that counts how many ways you can subdivide shapes or arrange parentheses or organize tournament brackets. They're important not for what they are, but for what they count. They appear unexpectedly throughout mathematics like that colleague who somehow ends up involved in every project despite not being officially assigned to any of them.

Here's the philosophical point: mathematics values both revolutionary breakthroughs and reliable tools. Pi changed geometry forever. But two thousand and twenty-five makes geometry teachable. Imaginary numbers unlocked entirely new fields. Sixty-one seventy-four helps students understand convergence.

Some numbers change fields. Others make work easier. Both matter. The difference between "important" and "useful" is often just perspective—and in mathematics, "well-behaved" is genuine praise, not consolation.

Because ultimately, mathematics needs its revolutionaries and its infrastructure. It needs numbers that cause paradigm shifts and numbers that demonstrate principles clearly. Two thousand and twenty-five and its colleagues represent the latter—the quiet excellence that makes the revolutionary work possible.

Well, my arithmetically-appreciative colleagues, we've reached the end of another quantum exploration into numerical identity. Today we've learned that in the multiverse of mathematical importance, two thousand and twenty-five exists in a superposition of "structurally perfect" and "not historically pivotal"—and that this isn't a contradiction but a celebration of different kinds of value.

We've discovered that mathematics has room for both revolutionary constants that change everything and well-behaved numbers that simply make everything easier. From two thousand and twenty-five's triple identity as square, triangular, and sum-of-cubes, to seventeen twenty-nine's famous taxi ride, to sixty-one seventy-four's hypnotic convergence—numbers achieve significance through reliability as much as through drama.

And as we approach the end of the calendar year twenty twenty-five, it's worth noting that the number itself will continue being mathematically excellent long after humans stop using it to label our orbital position.

Meanwhile, twenty twenty-six is waiting rather impatiently to take over—though preliminary analysis suggests it factors as two times three times three hundred and thirty-seven, which is considerably less elegant. We may need to investigate whether it has any redeeming structural qualities, or if it's just cosmically

awkward.

Want to explore more mathematical elegance? Visit us at multiverseemployeehandbook.com where you'll find fascinating science news and deep dives into the numbers that make the universe calculable.

And if you've enjoyed today's celebration of structural competence, share it with a fellow number theorist who's dreading the mathematical downgrade that comes with the new year.

This is your quantum-coherent correspondent, reminding you that in the multiverse of mathematics, we're all just trying to find our proper factorization—and sometimes being impeccably well-behaved is more valuable than being revolutionary.

And according to the latest memo from the Department of Mathematical Significance Assessment, two thousand and twenty-five has been promoted to "Exemplary Structural Integer, First Class"—a position that comes with no additional responsibilities but significantly better placement in textbook indices.

Two thousand and twenty-six has already submitted its application for consideration, citing its status as "the number that comes next" as primary qualification. The committee remains unconvinced.