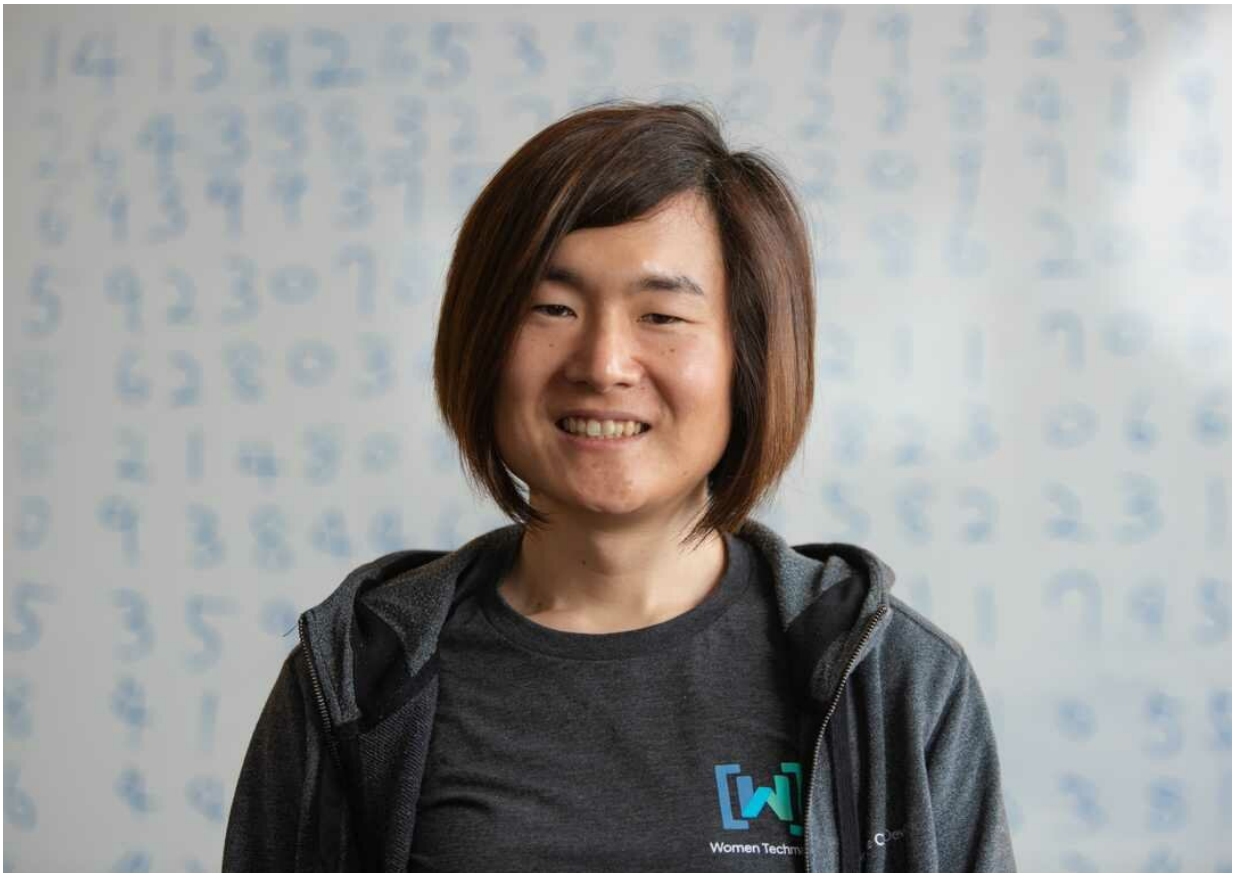# Pi has been calculated out to 31.4 trillion decimals, Google announces on Pi Day

March 15 2019, by Brett Molina, Usa Today

Emma Haruka Iwao, a developer advocate with Google, set a world record for the longest calculation of Pi, reaching more than 31 trillion decimal places. Credit: Google

Just in time for Pi Day, a new world record has been set for calculating

the ratio of a circle's circumference to its diameter.

On Thursday, Google revealed developer advocate Emma Haruka Iwao, with the help of the tech giant's cloud platform, calculated Pi to 31.4 trillion decimal places, beating the previous record by nearly 9 trillion digits.

To do this, Iwao's team used a program called ycruncher capable of computing Pi to trillions of digits powered by 25 [virtual machines](#) run through Google Cloud's Compute Engine.

"The biggest challenge with pi is that it requires a lot of storage and memory to calculate," said Iwao, who has worked with the company for nearly four years, in a blog posted published Thursday by Google.

The calculation required 170 terabytes of data, about the same amount of data as the entire Library of Congress print collection, said Google.

After about 4 months of calculating, Iwao arrived at the record-breaking result.

"The world of math and sciences is full of records just waiting to be broken," wrote Iwao in a separate Google post. "We had a great time calculating 31.4 trillion π digits, and look forward to sinking our teeth into other great challenges."
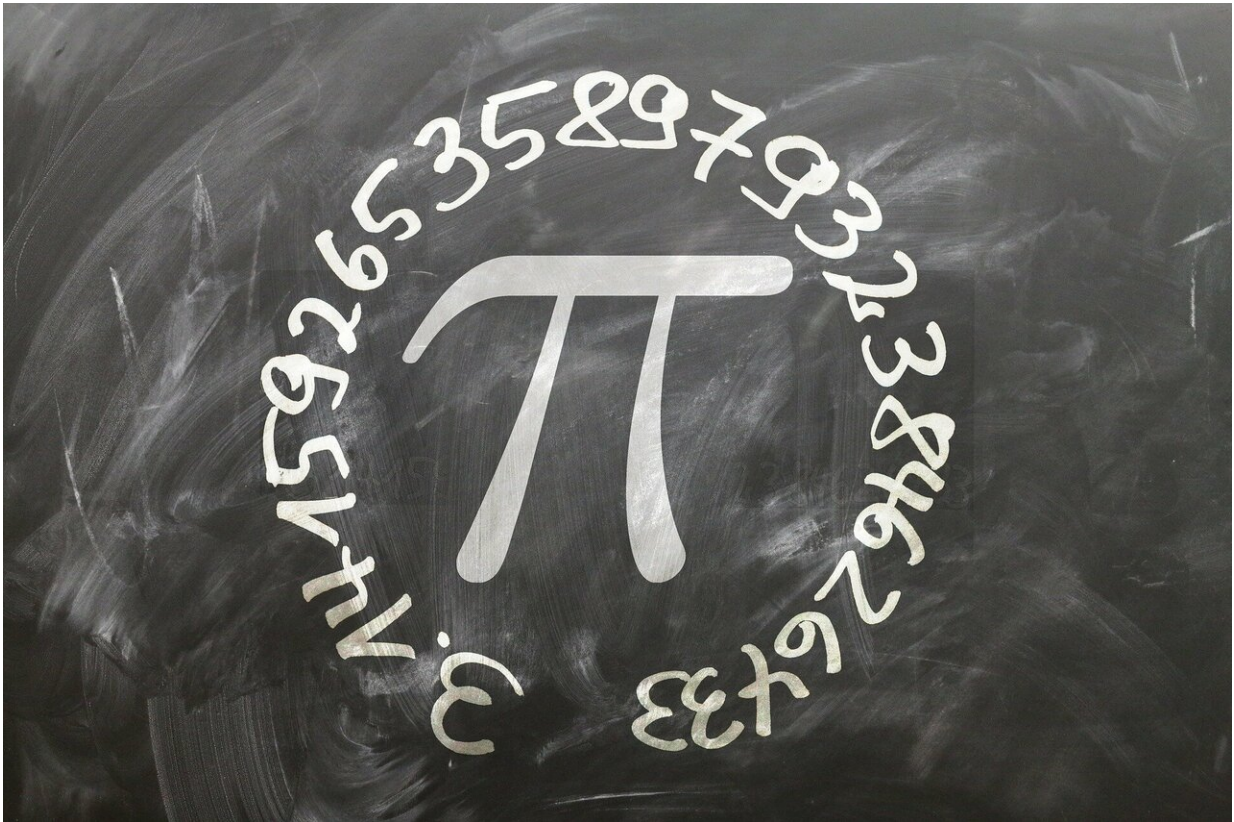
What is Pi Day? Everything you need to know about celebrating

March 14 is a great day for fans of math. And pies or pizza.

Thursday marks Pi Day, held on March 14 in honor of 3.14, the

measurement calculating the ratio of a circle's circumference to its diameter.

The number itself is rounded up to 3.14 but it can go on forever. On Thursday, Google confirmed it was able to compute Pi to 31.4 trillion [decimal places](), setting a new Guinness World Record.

Credit: CC0 Public Domain

But it's more than just math. Taking advantage of the pronunciation, people celebrate by breaking out pies of varying kinds (apple, cherry, and even pizza), while businesses roll out their best Pi Day deals.

Here's everything you need to know about Pi in all its forms.

What's the history of Pi?

According to the Exploratorium, a museum based in San Francisco, Pi (p) was first used nearly 4,000 years ago by the ancient Babylonians, calculating the area of a circle by taking three times the square of its radius.

The number has been calculated multiple times since by renowned mathematicians including Archimedes and Zu Chongzhi. The Pi symbol was introduced in 1706 by mathematician William Jones, but made popular more than 30 years later by Swiss mathematician Leonhard Euler.

How did Pi Day get started?

Former physicist Larry Shaw, who connected March 14 with 3.14, celebrated the first Pi Day at the Exploratorium with fruit pies and tea. The museum said Shaw led Pi Day parades there every year until his passing in 2017. In 2009, the House of Representatives passed a resolution marking March 14 as National Pi Day.

March 14 is big in science circles, too

It's not just Pi Day. March 14 is also the birthday of famed physicist Albert Einstein. March 14, 2019, also marks the one-year anniversary of the death of Stephen Hawking.

What's the deal with pie and pizza?

Several pizza chains are offering a variety of pizzas priced at $3.14

honoring Pi Day. It's also a great time to buy pie. For example, fast food chain Bojangles is selling three sweet potato pies for $3.14. This is the kind of math we can get behind.

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