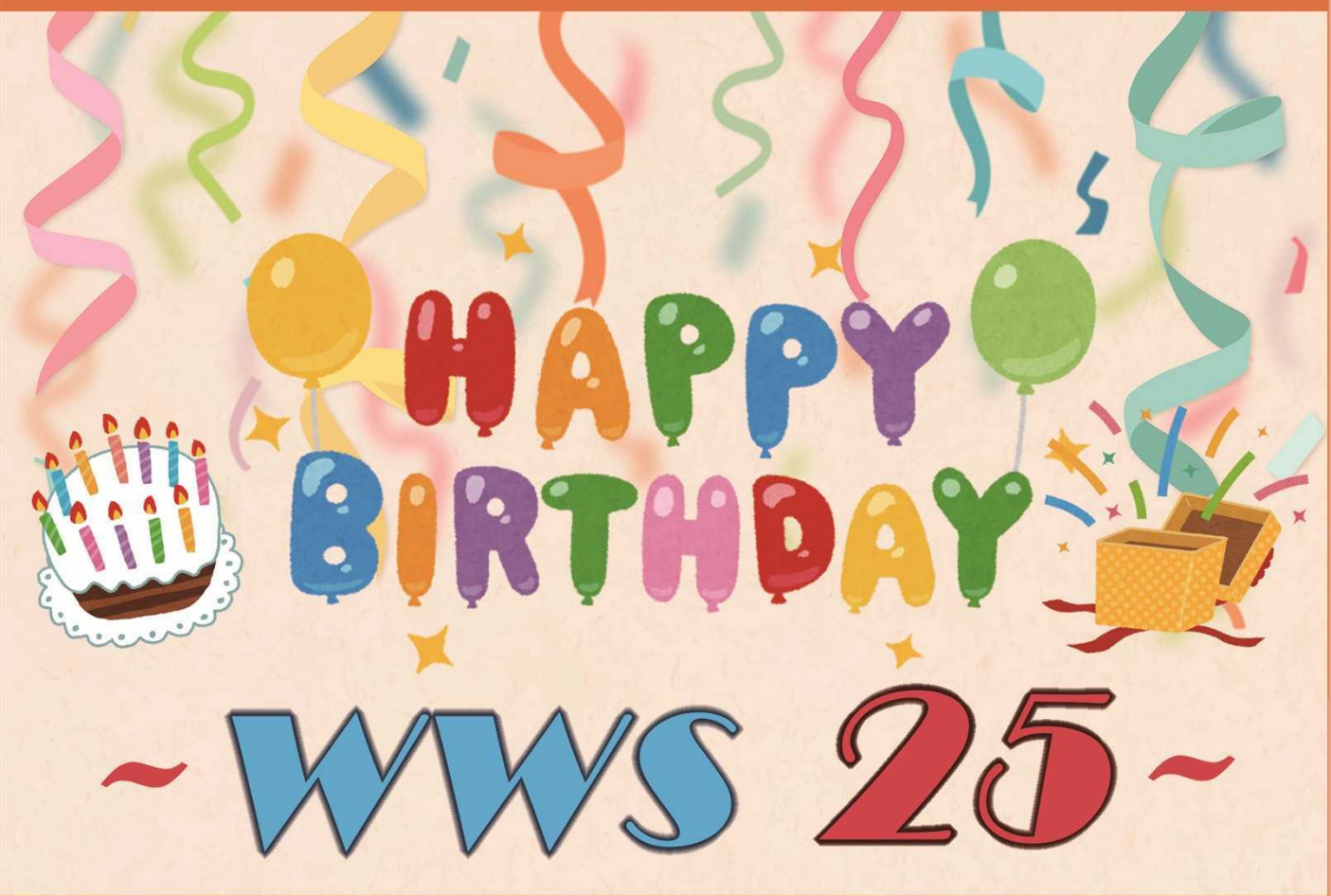


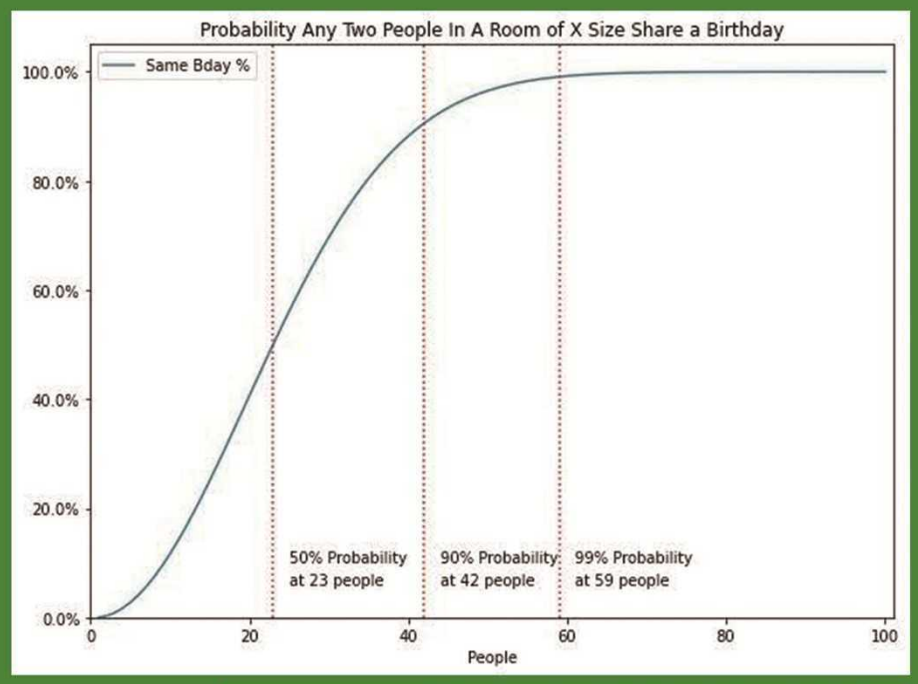
湘數

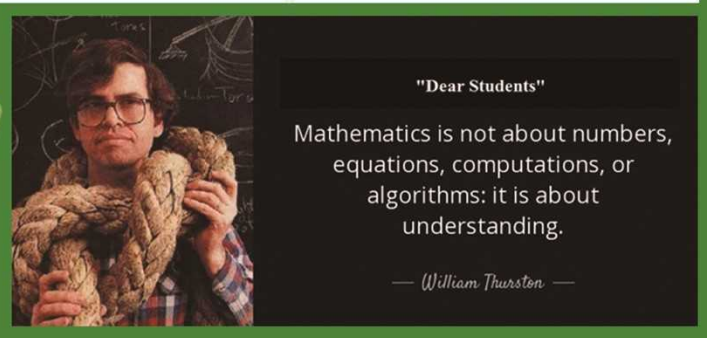
第二十期2024年6月

Birthdays and the Birthday Paradox

Happy Birthday, WWS!

Birthdays are special, but have you ever wondered about the chances of meeting someone with the same birthday as yours?
Let's explore something interesting related to birthdays and a surprising phenomenon called the Birthday Paradox.
If you meet a random person, what are the odds that they share your exact birthday out of 365 days? The odds are actually 1/365, or just 0.0027%!
So it's quite rare to find someone with the same birthday as yours. Now, here's the mind-boggling part. How many people do you think you need to gather in a room to have at least a 50% chance that two people share a birthday? You might think it's half of 366, which is 183, but it's actually only 23! If you gather just 23 people in a room, there is a 50.9% chance that at least two people share a birthday! It sounds impossible, but it's true.
This surprising result is known as the Birthday Paradox.





To understand this, let's look at the probability that all 23 people have unique birthdays. The first person has a 365/365 (100%) chance of a unique birthday. The second person has a 364/365 (99.7%) chance, since one birthday is taken. This trend continues until the 23rd person has a 343/365 (94.0%) chance. Now, to find the probability that all 23 people have unique birthdays, we multiply these probabilities together (0.491 or 49.1%). By subtracting this result from 1, we find the probability that at least two people share a birthday (0.509 or 50.9%).
As we add more people to the room, the probability of shared birthdays increases. For example, in a classroom of 30 students, there is a 70% chance of shared birthdays. With 70 people, there's a 99.9% chance!
So the next time you celebrate your birthday, remember the fascinating math behind it and the surprising Birthday Paradox that makes it even more intriguing!

1999–2024

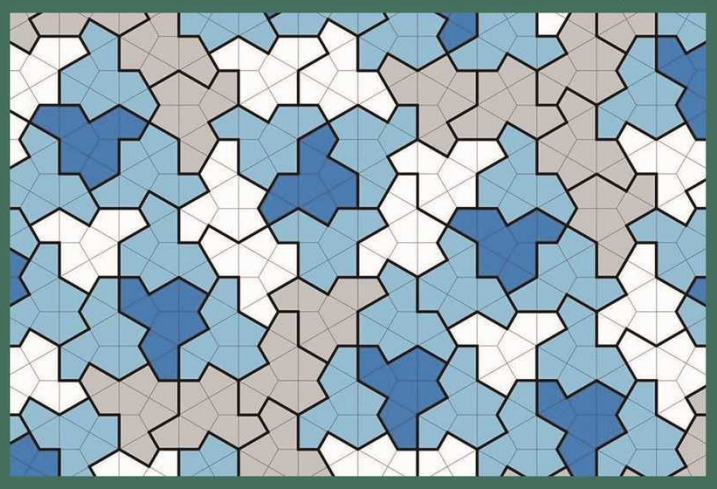
琢玉萃才廿五載
尊仁承學華湘人

Talents nurtured, Future empowered;
25 years and beyond

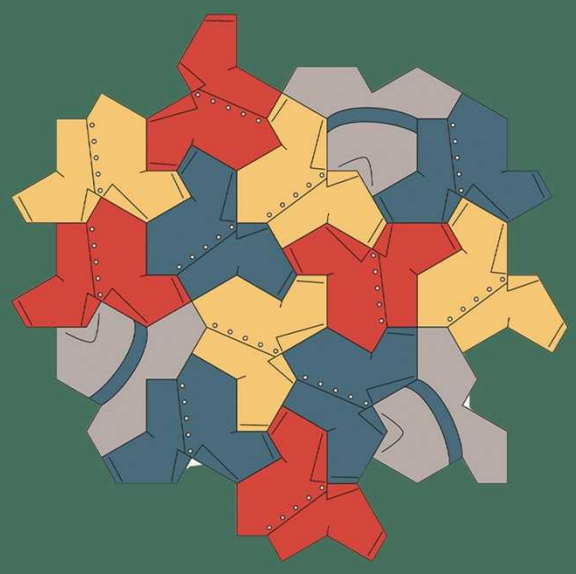
Einstein tiles

What are Einstein tiles?

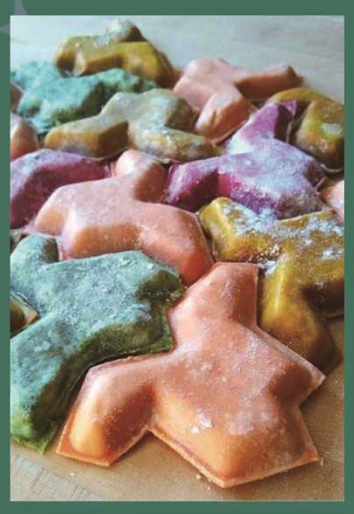
Last year, mathematicians discovered a unique shape that can cover a surface without forming repeating patterns. The shape is nicknamed "the Hat". It's the first true example of an "Einstein tile," a single shape that forms a special tiling of a plane like bathroom floor tiles. It can cover an entire surface with no gaps or overlapping but a pattern that never repeats.



What can you do with Einstein tiles?



Similar tilings have inspired artists, and the hat appears to be no exception. The tiling has been rendered artistically as smiling turtles and a jumble of shirts and hats.



Eat it - make ravioli

Fly it - make a kite

Wear it - make a hat

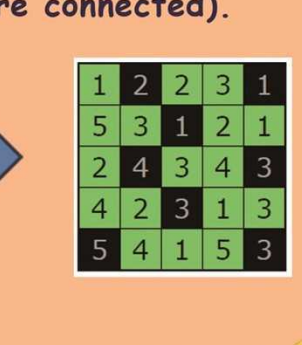
Spend it - fold dollar bills

Stitch it - Make a quilt

Insta-News

A heartwarming video of students creating a special equation for their math teacher has gone viral on Instagram. The video shows the teacher solving the equation "9x – 7we > 3(3x – 7u)", which is translated to "We Love you."

Instagram users reacted with joy, imagining what would have happened if the teacher couldn't solve it and expressing admiration for his quick solution. Many found it incredibly cute and emotional, while others joked about their own math skills.



Hitori

Objective / Rules

- Eliminate numbers until there are no duplicates in any row or column.
- Eliminate numbers by marking them in black.
- Black squares can't touch horizontally or vertically but it's ok to touch diagonally.
- Any white square can be reached from every other (i.e. they are connected).

1	2	2	3	1
5	3	1	2	1
2	4	3	4	3
4	2	3	1	3
5	4	1	5	3

→

1	2	2	3	1
5	3	1	2	1
2	4	3	4	3
4	2	3	1	3
5	4	1	5	3

GAME 1

5	1	1	2	5	4
3	1	3	6	5	2
3	4	3	1	6	2
4	2	6	3	1	5
1	3	3	4	2	2
6	2	2	1	4	3

GAME 2

3	3	4	5	1
5	4	1	5	3
1	5	4	1	4
4	4	5	3	2
1	3	2	4	3

GAME 3

4	5	3	1	1
3	4	4	4	1
5	3	1	4	2
4	4	1	3	5
4	1	5	2	2

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