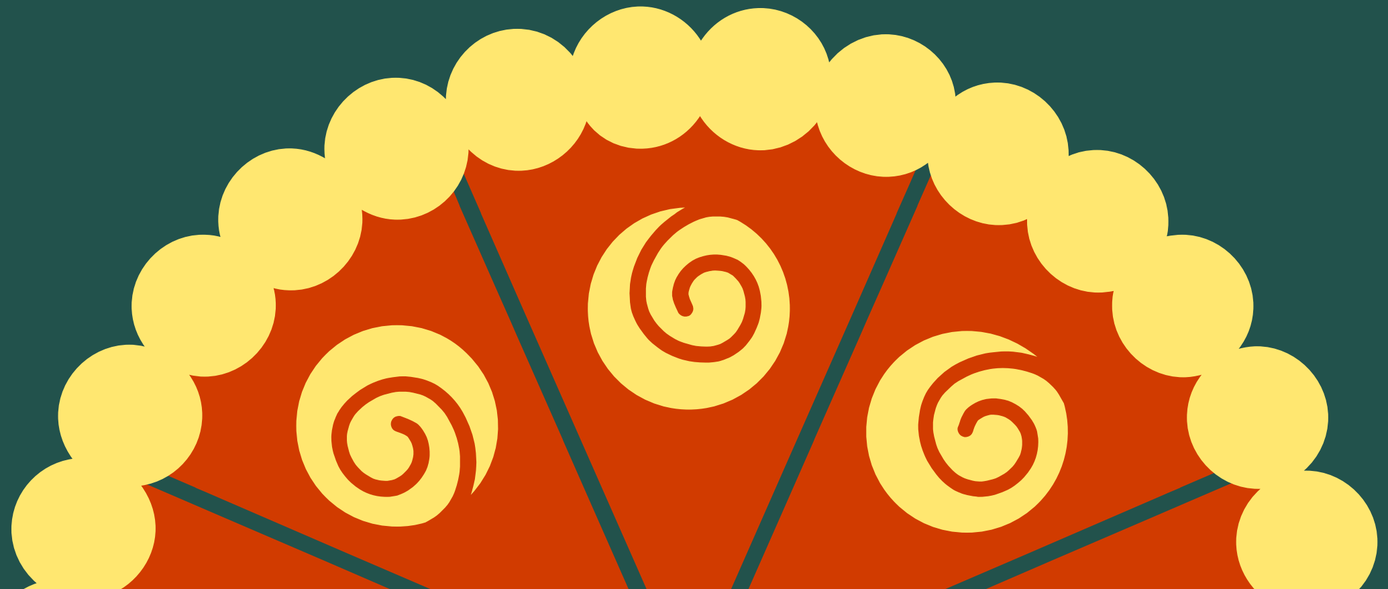
The Magical History of Pi



Why Pi?

For centuries, ancient scholars and scientists have puzzled over this mysterious number. What is it, what are its uses, and how has it figured in history?

Our agenda for today:

- Define pi
- List its uses
- Discuss its history

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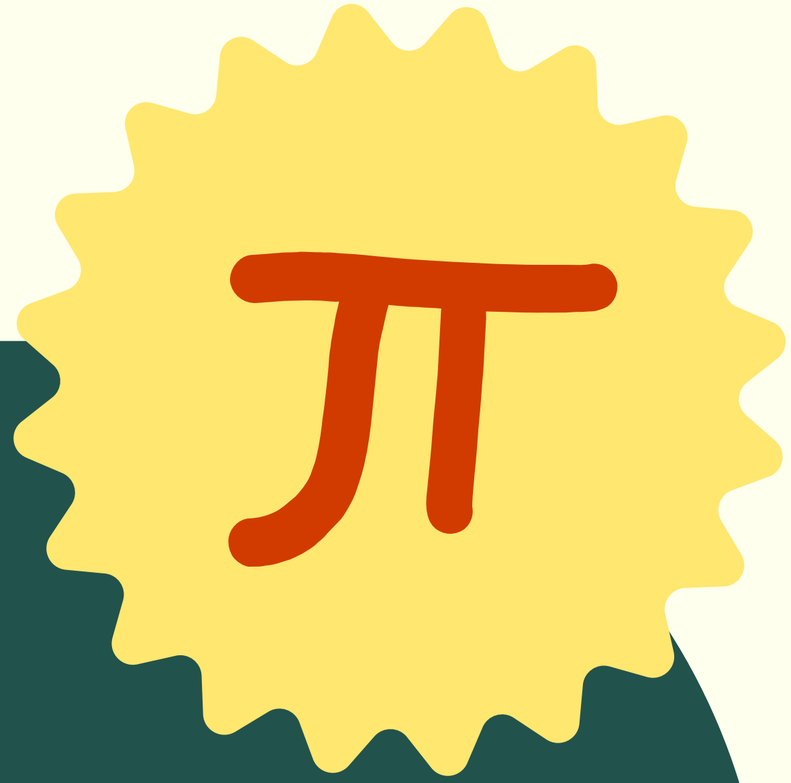
How: Highlight text, click on the link symbol on the toolbar, and select the page in your presentation that you want to connect.

Defining Pi

This mysterious 3.141592..., which comes in at every door and window, and down every chimney, calling itself the circumference to a unit of diameter.

Augustus De Morgan



Defining Pi

- Denoted by the symbol π.
- Defined as the ratio of the circumference of a circle to its diameter.
- Referred to as Archimedes' constant
- Commonly expressed as 3.1415929 or 22/7, although it is an irrational number with an infinite number of digits.

Uses of Pi

Used to calculate volume, surface area, as well as the circumference of three-dimensional shapes.

Here are two important formulas that use pi:

a. Circumference = π × Diameter

b. Area = πr2 square

Did anyone"discover" Pi?

Historical records do not clearly reveal who first "discovered" it or tried to calculate its value. What we do know is that certain ancient civilizations-—the Babylonians, the Egyptians, the Greeks, and the Chinese — have tried to approximate pi through different ways.

Pi's Ancient History

THE BABYLONIANS

(c. 2000 BCE)

- In their calculations for the area of a circle, they took 3 times the square of its radius.
- This gave a value of pi = 3.
  - → This was later changed to 3.125

THE EGYPTIANS

(c. 1650 BCE)

According to the Rhind papyrus—an ancient Egyptian scrolls that contained mathematical problems and data—Ancient Egyptians used a value of 3.16045, or 256/81 for pi.

ARCHIMEDES

(c. 250 BCE)

Archimedes is considered to be one of the greatest mathematicians of all time and is called "The Father of Integral Calculus". He developed an accurate method of obtaining pi by drawing a regular polygon inside a circle and another outside it.

ZU CHONGZHI

(c. 429–500)

The Chinese mathematician Zu Chongzhi further refined the value of pi, although he did not come across the work of Archimedes during his lifetime. According to his calculations, the value of the ratio of the circumference of a circle to its diameter was 355/113. He expressed pi accurately up to 8 decimal places.

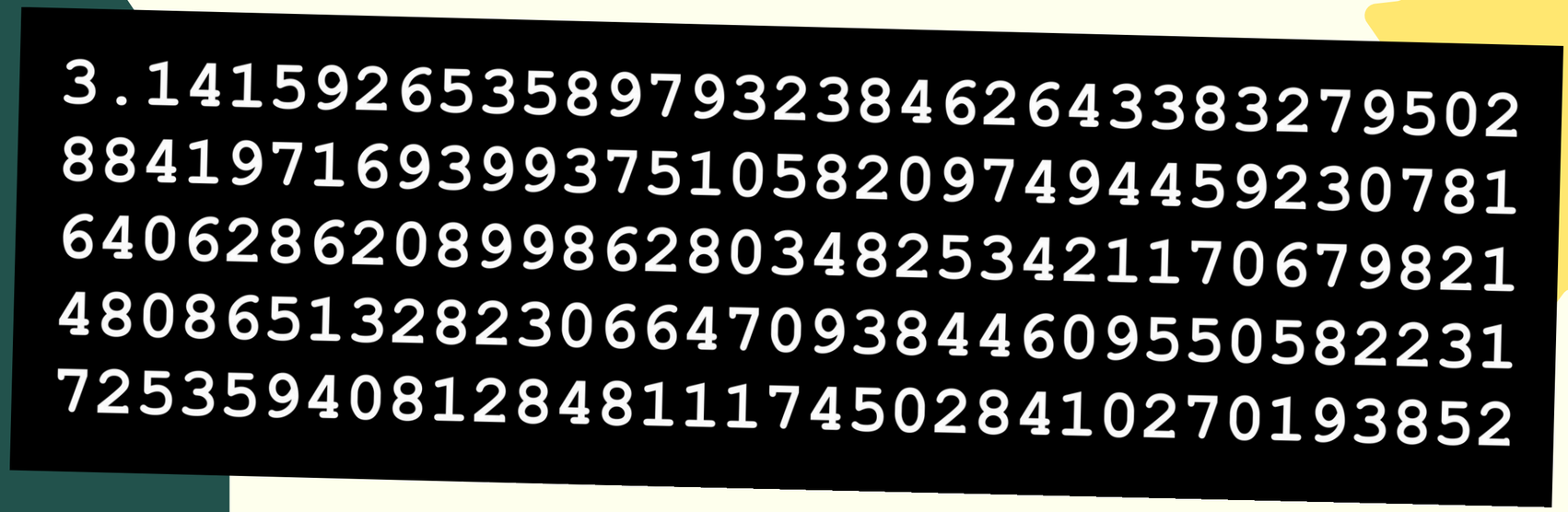
Calculating Pi

With the advent of mathematical innovations analyses came faster and more accurate ways of calculating for pi.

In the late 1600s, Sir Isaac Newton was able to calculate its value up to 16 decimal places with the use of his binomial theorem.

Calculating Pi

By the advent of the 21st century, computers were able to express pi to 31,415,926,535,897 decimal places!



Pi's Relevance

Pi continues to puzzle and amaze people in modern society.

Piphilology is the use of different techniques to memorize as many digits of π.

It is celebrated all over the world on March 14 and is known as Pi Day.

Thank you!

π

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