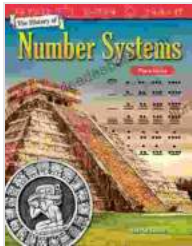


The History of Number Systems: From the Tally Mark to the Digital Age



The History of Number Systems: Place Value

(Mathematics Readers: the History of) by Course Hero

★★★★☆ 4.5 out of 5

Language : English

Hardcover : 160 pages

Item Weight : 1 pounds

Dimensions : 5.98 x 9.02 inches

File size : 5769 KB

Print length : 35 pages

Screen Reader : Supported



Numbers are an integral part of our daily lives. We use them to count, measure, track time, and communicate complex ideas. But where did numbers come from, and how have they evolved over time?

The history of number systems is a fascinating journey that spans thousands of years and involves many different cultures. In this article, we will explore the major milestones in the development of number systems, from the rudimentary tally mark to the complex digital systems we use today.

Prehistoric Number Systems

The earliest known number systems were developed by prehistoric humans. These systems were very simple and were used to record

quantities such as the number of animals in a herd or the number of days until a particular event.

One of the most common prehistoric number systems was the tally mark system. Tally marks were simply lines or notches that were carved into a bone, stick, or piece of clay.

Place Value

				3,	5	8	7						
				2	9	4,	7	1	0.	6	2	5	
				7	1	8,	0	6	0,	4	9	5.	3

Model Form

Use blocks to represent a number.

1000s (red blocks) = 1000

100s (blue blocks) = 100

10s (yellow blocks) = 10

1s (white blocks) = 1

Number on the right of the decimal point represents a fraction of a whole number.

Expanded Form

Write the number in expanded form.

3,587 = 3,000 + 500 + 80 + 7

3,587 = (3 x 1000) + (5 x 100) + (8 x 10) + 7

Tally marks were a very simple way to record numbers, but they were limited in their ability to represent large quantities. As a result, prehistoric humans eventually developed more advanced number systems.

Ancient Number Systems

The ancient civilizations of Mesopotamia, Egypt, and India developed more advanced number systems that allowed them to represent large quantities and perform more complex calculations.

The Mesopotamians developed a base-60 system around 3000 BCE. This system was used for both counting and measuring time. The Mesopotamians also developed a system of place value, which allowed them to represent numbers using fewer symbols.

Place Value

			3,5	8	7		
	2	9	4,7	1	0.6	2	5
7	1	8,0	6	0,4	9	5.3	

Model Form

Use place value blocks to model the number 3,587.

3 thousands = 3,000

5 hundreds = 500

8 tens = 80

7 ones = 7

3,000 + 500 + 80 + 7 = 3,587

Expanded Form

Write the number in expanded form.

3,587 = 3,000 + 500 + 80 + 7

The place value of the digit 5 in 3,587 is 500.

Write the number in the form of the standard form (hundreds & tens of a whole number).








The Mesopotamian number system was a base-60 system.

The Egyptians developed a decimal system around 1000 BCE. This system was based on the powers of 10, and it used a set of hieroglyphs to represent numbers.


Egyptian numerals

Laura T

The following hieroglyphs were used to denote powers of ten:

Value	1	10	100	1,000	10,000	100,000	1 million, or infinity
Hieroglyph			or 				
Description	Single stroke	Heel bone	Coil of rope	Water lily (also called Lotus)	Finger	Tadpole or Frog	Man with both hands raised

Multiples of these values were expressed by repeating the symbol as many times as needed. For instance, a stone carving from Karnak shows the number 4622 as



The Indians developed a number system around 500 BCE that included the concept of zero. This concept was later adopted by the Arabs and eventually became the foundation for the modern number system.

Place Value

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
			3, 5, 8, 7			
	2, 9, 4, 7, 1, 0, 6, 2, 5					
7, 1, 8, 0, 6, 0, 4, 9, 5, 3						

Model Form

1000's = 1000
100's = 100
10's = 10
1's = 1

1000's = 1000
100's = 100
10's = 10
1's = 1

1000's = 1000
100's = 100
10's = 10
1's = 1

Expanded Form

3, 5, 8, 7

$3000 + 500 + 80 + 7$

$3000 + 500 + 80 + 7$

The Indian number system was the first system to include the concept of zero.

The Modern Number System

The modern number system is a decimal system that uses the digits 0-9. This system was developed in Europe in the Middle Ages, and it is now the most widely used number system in the world.

The modern number system is based on the concept of place value. This means that the value of a digit depends on its position in the number.

DECIMAL PLACE VALUE CHART

THOUSANDS TO THOUSANDTHS

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths

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The modern number system is a powerful tool that allows us to represent and manipulate large numbers. It is used in all areas of science, technology, and society.

The Future of Number Systems

The future of number systems is uncertain. However, it is clear that we will continue to need new and more powerful ways to represent and manipulate numbers.

One possible future development is the use of quantum computing to create new number systems that are more efficient and powerful than the

current ones.

Another possible future development is the use of artificial intelligence to create new algorithms for manipulating numbers.

Whatever the future holds, it is clear that number systems will continue to play a vital role in our lives.

The history of number systems is a fascinating journey that spans thousands of years and involves many different cultures. From the rudimentary tally mark to the complex digital systems we use today, numbers have played a vital role in our development as a species.

As we continue to explore the universe and push the boundaries of human knowledge, we will undoubtedly need new and more powerful ways to represent and manipulate numbers.

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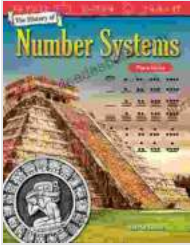
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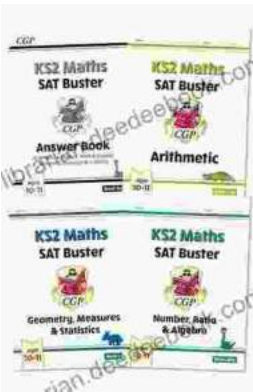
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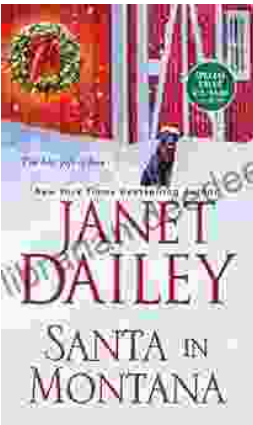


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