

INDIAN numbers

200 BC to now

In ancient times, the best way of doing sums was with an **abacus** – a calculating device made of rows of beads or stones. But about 1500 years ago, people in India had a better idea. They invented a “place system” – a way of writing numbers so that the symbols matched the rows on an abacus. This meant you could do tricky sums **without** an abacus, just by writing numbers down. A symbol was needed for an empty row, so the Indians invented **zero**. It was a stroke of genius. The new numbers spread from Asia to Europe and became **the numbers we use today**.



Unlike other number systems, the Indian system had only **10 symbols**, which made it wonderfully simple. These symbols changed over the centuries as they spread from place to place, gradually evolving into the modern digits we all now use.

300 BC to 400 AD	400 AD to 600 AD	700 AD to 1100	900 AD to 1200	16th century
—	—	१	1	1
—	—	२	2	2
—	—	३	३	3
—	—	४	४	4
—	—	५	५	5
—	—	६	६	6
—	—	७	७	7
—	—	८	८	8
—	—	९	९	9
—	—	०	०	0

The Indians wrote their numbers on palm leaves with ink, using a flowing style that made the numbers curly. The symbols for 2 and 3 were groups of lines at first, but the lines joined up when people wrote them quickly:



From this ...

... to this.

NOTHING comes to Europe

EUROPE 1200 to NOW Indian numbers slowly replaced Roman numbers in Europe as people discovered how useful they were for calculating. The new numbers helped trigger the Renaissance, or “age of learning” – the period of history in which modern science was born.

ENGLAND 1100 AD
Adelard of Bath, an English monk, visited North Africa disguised as an Arab. He translated Al Khwarizmi's books and brought zero back to England. As he only told other monks, nothing happened.

NORTH AFRICA 1200 AD
Indian numbers were picked up by Italian merchants visiting the Arab countries of North Africa. In 1202 an Italian called Fibonacci explained how the numbers worked in a book called *Liber Abaci*, and so helped the Indian system spread to Italy.

BAGHDAD 800 AD

Indian numbers and zero spread to Baghdad, which was the centre of the newly founded Muslim empire. A man called Al Khwarizmi wrote books about maths and helped spread Indian numbers and zero to the rest of the world. The words “arithmetic” and “algorithm” come from his name, and the word “algebra” comes from his book *Ulm al-jabr wa'l muqabalah*.

We sometimes call modern numbers **Arabic**, because they spread to Europe through the Arab world

INDIA 200 BC to 600 AD
Mathematicians in India were using separate symbols for 1 to 9 as early as 300 BC. By 600 AD they had invented a place system and zero.

The Muslim empire spread across Africa, taking zero with it.

Merchants travelling by camel train or boat took the Indian number system west.