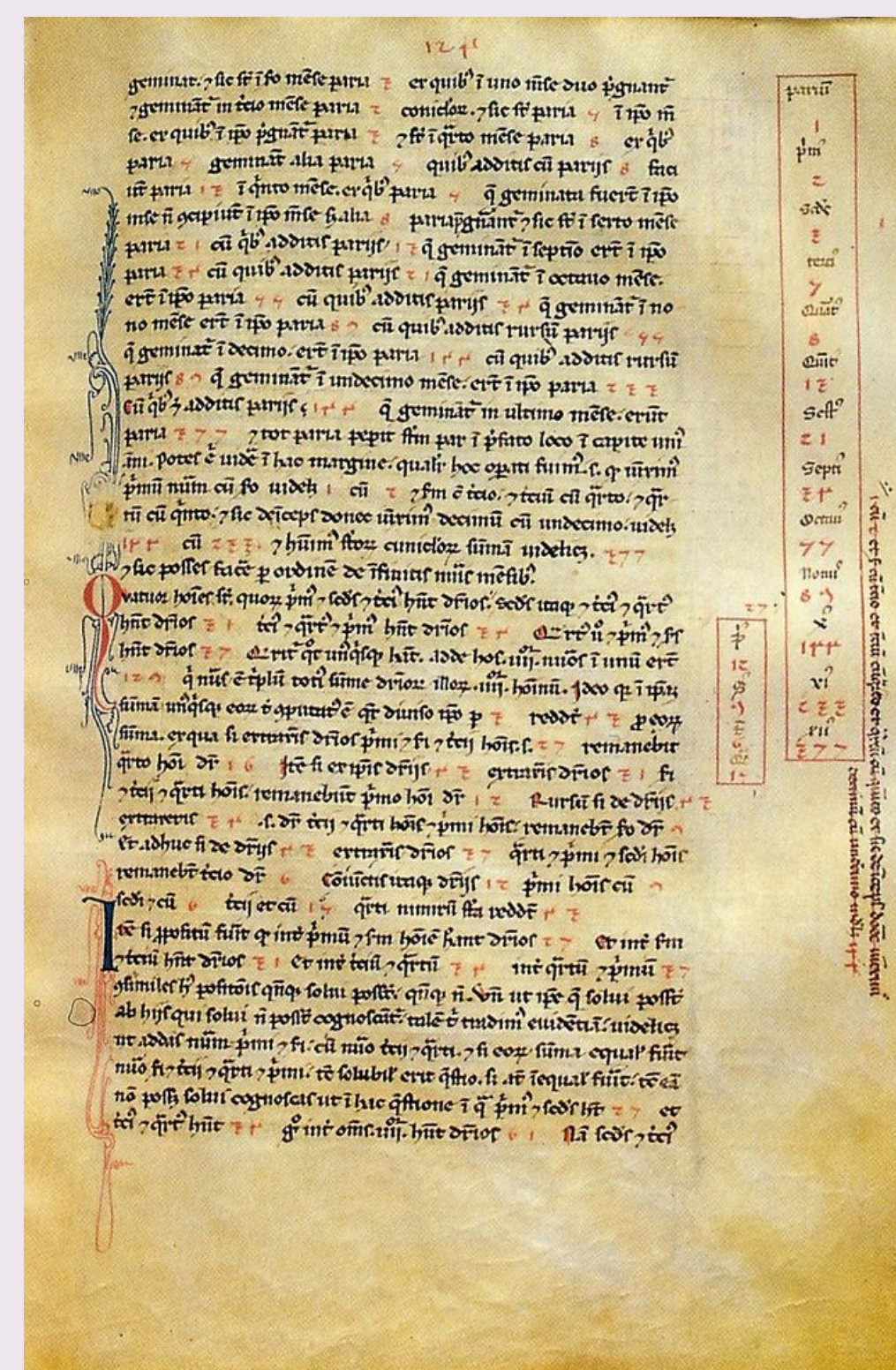


π Returns to Europe

Fibonacci Finds Inspiration

Between 400 BC and 1400 AD, the East far surpassed Europe in the calculation of digits of π . By the 9th century, mathematics and science prospered in the Arab world. Upon learning Hindu–Arabic numerals, Italian Leonardo Fibonacci concluded they were simpler and more efficient than Roman numerals. Inspired, he travelled throughout the Mediterranean world to study under the leading Arab mathematicians of the time. In 1220 he used what he learned to write his book *Liber Abaci* and approximated π to be 3.1418.



François Viète

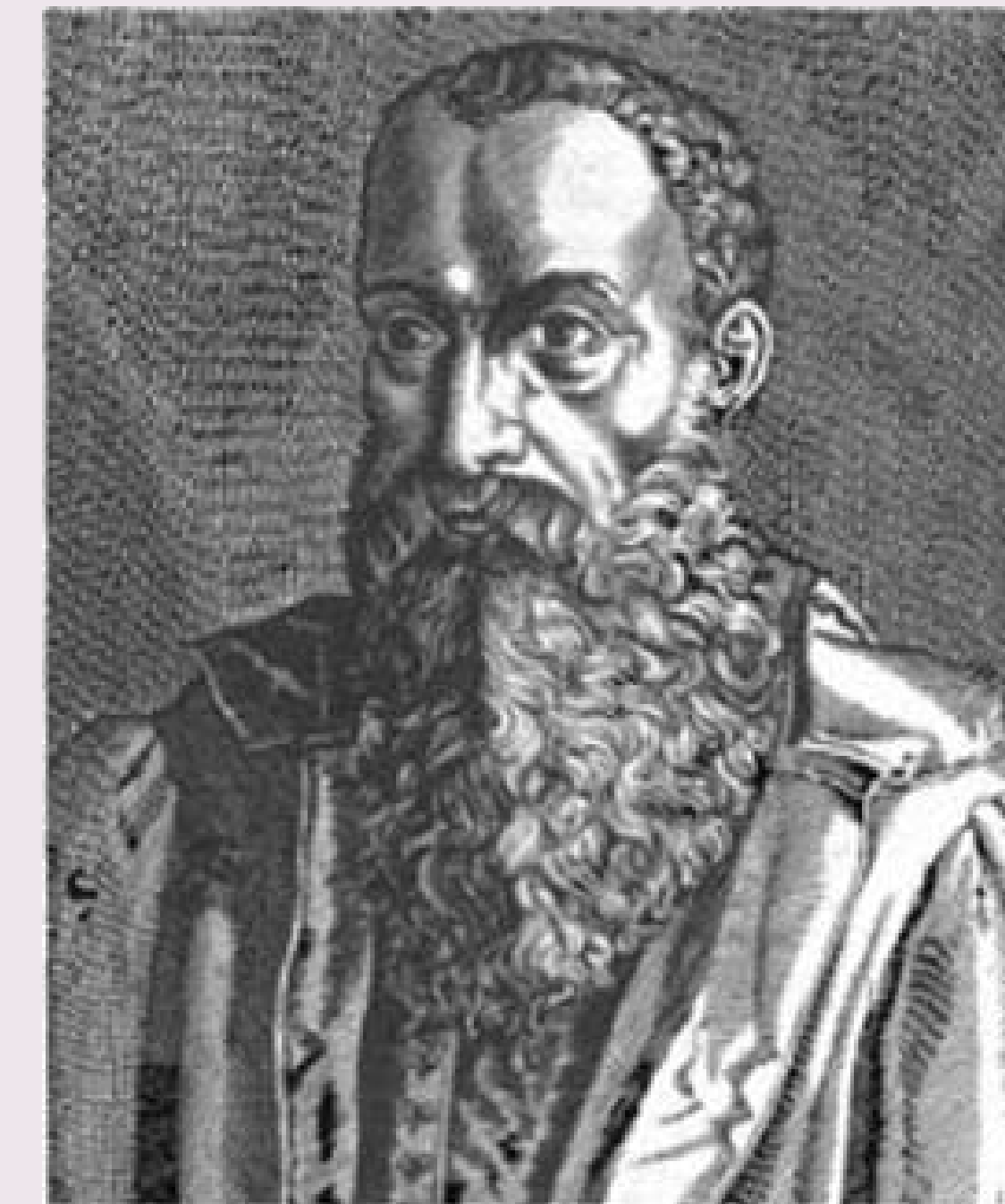
In 1579 French lawyer and mathematician François Viète calculated π to ten digits, a record for the time. To accomplish this feat he employed Archimedes' method with a polygon of 393,216 sides. Additionally, Viète was the first to describe π using an infinite product:

$$\frac{2}{\pi} = \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{2+\sqrt{2}}}{2} \cdot \frac{\sqrt{2+\sqrt{2+\sqrt{2}}}}{2} \cdot \dots$$



Adrian van Romanus

In 1593 Flemish mathematician Adrian van Romanus used polygons with over 100 million sides to accurately calculate π to 15 digits!



The Ludolphian Number

German-Dutch mathematician Ludolph van Ceulen spent much of his life calculating π using Archimedes' method. His first calculation used a regular polygon with roughly 480 billion sides and accurately gave the first 20 decimal values of π . In 1615, after his death, a publication gave his final computation which was accurate up to 35 decimal places. This final computation used polygons with $4 \cdot 10^{18}$ sides. As a result, π was called the “Ludolphian number” in Germany until the early 20th century. van Ceulen's 35 digit approximation was engraved on his tombstone in Leiden.

