Math in Medieval Europe

Potted sketch of early-to-middle Medieval Europe:

- formal end of the Western Roman Empire came in 476 AD when the Ostrogothic king Odoacer deposed the last (pretty much puppet) Roman Emperor and sent the regalia to the Eastern Roman Emperor in Constantinople. [The Eastern Roman Emperor formally dissolved the Western Imperial Court in 554.]

- The various Germanic groups established kingdoms (Ostrogoths in Italy, Vandals in North Africa, Visigoths in Spain, Angles, Saxons, & Jutes in England, Franks in what is now France)

- Eventually some became stable and the social system evolved from warrior culture conquered it to feudalism.

  Feudalism is a system with a hierarchy dominated by a military class and working by reciprocal personal obligation.

- The Church kept literacy & some scholarship alive.

The Frankish king Charlemagne (Karl der Grosse), (774-814)
conquered much of what is now France, Germany, northern Italy, etc. ;(reigned 800-814)
and, with the concurrence of the Pope, crowned himself Emperor.
Tried to re-establish the Western Roman Empire; but it
fell apart after he died.

Carolingian Renaissance: - established schools attached to
                                major churches and cathedrals
                            - reforms in the Catholic Church
                            - attempts to sponsor arts & sciences

Math in the meantime:

Boethius (480-524 AD)   - mainly remembered as a theologian
                            and philosopher, also an educator

- wrote Latin translations of some (parts of) classical Greek texts
    (adaptations)
including Euclid's Elements (mostly from Books I-III)
and Nichomachus' Arithmetica.

- these became the basic texts used in early & middle medieval Europe.
- set up the standard curriculum ("quadrivium"): arithmetic, geometry,
                                                    music, astronomy

Gerbert of Aurillac (c 940-1003)
(became Pope Sylvester II in 999)

- studied in Spain and wrote textbooks (largely based on Boethius) on arithmetic and geometry

- had a reputation as a (black) magician

Hrotsvitha of Saxony (c 932-1002)

- a nun and later abess in Germany

- wrote a short work on perfect numbers

Adelhard of Bath (c 1075-1160)

Disguised himself as a Muslim to study in Cordoba in Spain (c. 1120), and obtained an Arabic copy of Euclid's Elements, which he translated into Latin. This translation became the basis of all the Western European editions of Euclid's Elements until the 1500's.

Abraham ben Ezra (c. 1095 - 1167)

- a Jewish merchant and scholar, based in Spain, but travelled very widely, including to England and Egypt.

- wrote on philosophy & theology, also wrote poetry
  (later paid homage to & reworked
  by Robert Browning in the 19th Cen.)

- wrote a book on the Hindu number system (Sefer ha-Mispar)
  & doing arithmetic in it
  - included zero
  - used Hebrew letter to represent numerals

Next: Leonardo of Pisa ("Fibonacci") (c. 1170-1250)