Renaissance Names (15th Century)

The Italian abacists of the 14th century were instrumental in teaching the merchants the "new" Hindu-Arabic decimal place-value system and the algorithms for using it. There was formidable resistance to this system, in Italy and most of Europe, but it saved time and money... and could be audited!

1344 AD: Dardi of Pisa Wrote the book *Aliabraa argibra* extending the usual Islamic list of 6 equations to 198 equations.

$$(x+b)^3 = c \qquad x^3 + 3bx^2 + 3b^2x = c - b^3 \qquad x = \sqrt[3]{c} - b$$

For example, $x^3 + 60x^2 + 1200x = 4000$ has $b = 20$, $c = 12,000$ yields $x = \sqrt[3]{12000} - 20$. Clearly this method does not generalize!

Example: A man lent 100 lire to another at an interest rate of x denarii per month, compounded annually. After 3 years he gets back 150 lire. What was the interest rate? (240 denarii=1 lira, so the annual interest rate is $12x$ denarii/lire, or $x/20$ lire/lire.) $100(1 + x/20)^3 = 150$

1430–40 AD: Piero della Francesca Wrote *Trattato d'abaco*, extending Dardi's rules to polynomials of degree 5 and 6.

1440 Johannes Gutenberg invented the printing press. Not math but...

1435 AD: Leon Battista Alberti Wrote *Della pintura* on geometry and perspective, invented the Vigenère cipher (see Math 348).

1463 Regiomontus (Johannes Müller) Wrote *On triangles of every kind.* The translation of his name into German is Königsberg (today Kaliningrad).

1484 AD Nicolas Chuquet French physician in Lyon, wrote *Triparty* Introduced exponential notation: a^2 meant ax^2, a^{m2} meant ax^{-1}. Unfortunately, *Triparty* was never printed and it became ignored after Paciolo's printed books.

1494 AD: Luca Paciolo (Franciscan friar in Sansepolcro Italy) Wrote *Summa de arithmetica, geometrica, proportioni et proportionalota.* In 1509 he wrote a Latin translation of Euclid's *Elements*, and one of the first math texts to be printed.

1524 AD: Christoff Rudolff Wrote *Coss* which first used $\surd$, $+$ and $-$ signs.

1544 AD: Michael Stifel Itinerant Lutheran preacher, professor at Jena. Wrote *Arithmetica integra*, which combined all quadratic equations to $x^2 = bx+c$. Allowed negative coefficients, but did not accept negative numbers as solutions.

1557 AD Robert Recorde Wrote *The Whetstone of Witte*, first English algebra book. Introduced modern equal sign "bicause noe 2 thynges can be moare equalle" He was also the physician to King Edward VI and died in prison.