The History of Algebra

Algebra = the “art of solving equations”.

Babylonians (ca. 1900 BC): knew how to solve linear and quadratic equations:
\[ ax + b = c \quad \text{and} \quad x^2 + bx = c, \ x^2 + c = bx \]

Al-Kwarizmi (ca. 820 AD): wrote the text “Al-jabr…”, a manual for solving the equations of type (1).

Scipione de Ferro (ca. 1505): found a method for solving the special cubic equation \( x^3 + mx = n \).

Tartaglia (1535, 1541): was able to solve the general cubic
\[ ax^3 + bx^2 + cx + d = 0. \]

Ferrari (ca. 1540): adapted Tartaglia’s method to solve quartic equations:
\[ ax^4 + bx^3 + cx^2 + dx + e = 0. \]

Cardano (1545): in his treatise Ars magna (= the Great Art), he presented the method of solving cubics which he learned (and stole) from Tartaglia.

Ruffini, Abel, Galois (ca. 1800): proved that if \( n \geq 5 \), there cannot exist a general formula for solving a polynomial equation of degree \( n \):
\[ x^n + a_{n-1}x^{n-1} + \ldots + a_1x + a_0 = 0. \]