Derivation of the Quadratic Equation

finiteautomata4

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1   For laurakh94

Proof.
$ax^2 + bx + c = 0$ where a, b, c$\in \mathbb{C}$, and x $\subset \mathbb{C}$

- $x^2 + \frac{b}{a}x + \frac{c}{a} = 0$ divide by a

- $x^2 + \frac{b}{a}x = -\frac{c}{a}$ subtract

- $(x + \frac{b}{2a})^2 - \frac{b^2}{4a^2} = -\frac{c}{a}$ substitute in $(x + \frac{b}{2a})^2 - \frac{b^2}{4a^2}$

- $(x + \frac{b}{2a})^2 = \frac{b^2}{4a^2} - \frac{c}{a}$ add

- $x + \frac{b}{2a} = (\frac{b^2}{4a^2} - \frac{c}{a})^{\frac{1}{2}}$ square root

- $x + \frac{b}{2a} = (\frac{b^2}{4a^2} - \frac{c}{a})^{\frac{1}{2}}$ square root $\square$

2   Conclusion

Straightforward, but unfortunately unlikely for a student of the US educational system to have learned, much less memorized (and without insight into the substitution step, nontrivial to a nonmathematician).

The general solution of the cubic was one of the central mysteries of mathematics up until the late 1500s. Subsequently, the discovery of the unsolvability of the

code available at https://github.com/NotBrianZach/proofs