Know how to solve?

(b) When the solution of a number is not real, you reduce the equation for $w$ to one you obtain a quadratic equation for $w$.

(c) In the quadratic equation $ax^2 + bx + c = 0$ in the variable $w$, $a$, $b$, and $c$ are complex numbers.

(d) Let $x$ be a complex number. If $x = 0$, there is no solution.

(e) To find the solutions, you reduce the equation to a general quadratic equation and then solve it.

(f) The following steps reduce the solution of a general quadratic equation to a quadratic equation for $w$.

(g) First, you find the square root of the expression that gives the solutions.

(h) Then, you find the roots of $w$ by the quadratic equation.

(i) Finally, you find the solutions of the equation.

(j) If you have more complex numbers, you can solve by the following steps:

I. Let $b$ be a given complex number. Show by the following steps that the equation $w^2 + b = 0$ has exactly two solutions.

2. To find the solutions of $w^2 = z$, whose coefficients may be real or complex numbers, you can use the quadratic formula.

3. The following steps reduce the equation to a quadratic equation for $w$.

4. Once you have the solutions of $w^2 = z$, you can find the solutions of the equation.

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<thead>
<tr>
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</table>
3. Let $z$ and $c$ be complex numbers.

The quadratic formula

\[ \text{Appendix A: Lab/Recitation Projects} \]