Problem: We will be provided with three numbers a, b and c, and we need to solve the equation .

Firstly, we need to determine whether the solutions of the equation are real or complex. So, we need to calculate the delta (), which equals to .

When delta equals to 0, we know that there is only one solution of the equation, which is a double root. We can easily obtain that .

When delta is greater than 0, we know that there are 2 solutions, which are real numbers. We can then easily obtain the solutions by using the equation: .

When delta is less than 0, we know that we won’t have any real solutions. But we can still express the complex solutions in Fortran90. In this situation, the real part of the solutions is , and the imaginary parts of the solutions are , which are actually . So we need to calculate the real part and the imaginary part separately and finally put them together by using the function cmplx( ).

Input: Three real numbers a, b, c

Output: The solutions of the equation

1. *delta* ←
2. **If** *delta* > 0 **Then**
3. *solu1* ←
4. *solu2* ←
5. Print(*solu1*, *solu2*)
6. **Elseif** *delta* < 0 **Then**
7. *real\_part* ←
8. *imaginary\_part* ←
9. *solu3* ← Cmplx(*real\_part*, *imaginary\_part*)
10. *solu4* ← Cmplx(*real\_part*, *-imaginary\_part*)
11. Print(*solu3*, *solu4*)
12. **Else**
13. solu ←
14. Print(*solu*)
15. **End**
16. **End**

