```cpp
#include <iostream>
using namespace std;
```

00	`unsigned int Solve(double a, double b, double c, double& r1, double& r2)`
01	`{`
02	`    unsigned int retVal = 0;`
03	`    if (0 == a) {`
04	`        if (0 == b) {`
05	`            if (0 == c) { // Infinite solutions`
06	`                retVal = 5;`
07	`            } else { // Inconsistent equation`
08	`                retVal = 0;`
09	`            }`
10	`        } else { // Linear equation`
11	`            retVal = 1;`
12	`            r1 = -c/b;`
13	`        }`
14	`    } else {`
15	`        double disc = b*b - 4*a*c;`
16	`        if (0 == disc) { // Repeated roots`
17	`            retVal = 2;`
18	`            r1 = r2 = -b/(2*a);`
19	`        } else {`
20	`            if (disc > 0) { // Real distinct roots`
21	`                retVal = 3;`
22	`                r1 = (-b + sqrt(disc))/(2*a);`
23	`                r2 = (-b - sqrt(disc))/(2*a);`
24	`            } else { // Complex conjugate roots`
25	`                retVal = 4;`
26	`                // ...`
27	`            }`
28	`        }`
29	`    }`
30		
31	`    return retVal;`
32	`}`

Equivalence Classes of Test Cases:

a	b	c	Case
0	0	0	Infinite roots
0	0	2	No root
0	2	-4	Single root
4	4	1	Repeated roots
1	-5	6	Distinct roots
2	3	4	Complex roots
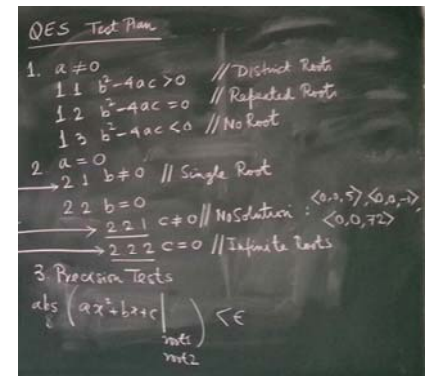
a	b	c	Equivalence Class	Statements Covered	Branches Covered	Paths Covered
0	0	0	Infinite roots	2,3,4,5,6,31	2-3,3-4,4-5,5-6,6-31	2-3-4-5-6-31
0	0	2	No root	2,3,4,5,8,31	2-3,3-4,4-5,5-8,8-31	2-3-4-5-8-31
0	2	-4	Single root	2,3,4,11,12,31	2-3,3-4,4-11,11-12,12-31	2-3-4-11-12-31
4	4	1	Repeated roots	2,3,15,16,17,18,31	2-3,3-15,15-16,16-17,17-18,18-31	2-3-15-16-17-18-31
1	-5	6	Distinct roots	2,3,15,16,20,21,22,23,31	2-3,3-15,15-16,16-20,20-21,21-22,22-23,23-31	2-3-15-16-20-21-22-23-31
2	3	4	Complex roots	2,3,15,16,20,25,26,31	2-3,3-15,15-16,16-20,20-25,25-26,26-31	2-3-15-16-20-25-26-31

```cpp
int main()
{
    double a, b, c;
    double r1, r2;
    unsigned int retVal = 0;
    unsigned int moreInputs = 0;

    do {
        cout << "Input coefficients: a, b and c" << endl;
        cin >> a >> b >> c;
        cout << endl;

        switch (retVal = Solve(a, b, c, r1, r2)) {
            case 0: cout << "No root" << endl; break;
            case 1: cout << "Linear Eqn: r1 = " << r1 << endl;  break;
            case 2: cout << "Repeated real roots: r1 = " << r1 << " r2 = " << r2 << endl;  break;
            case 3: cout << "Distinct real roots: r1 = " << r1 << " r2 = " << r2 << endl;  break;
            case 4: cout << "Complex conjugate roots" << endl;  break;
            case 5: cout << "Infinite roots" << endl;  break;
            default: cout << "Something wrong" << endl;  break;
        }

        cout << "Continue Solving? Input 1" << endl;
        cin >> moreInputs;

    } while (1 == moreInputs);

    return 0;
}
```