The standard form of a quadratic equation is:

```
ax² + bx + c = 0, where
a, b and c are real numbers and
a != 0
```

The term `b² - 4ac` is known as the **discriminant** of a quadratic equation. It tells the nature of the roots.

- If the discriminant is greater than `0`, the roots are real and different.
- If the discriminant is equal to `0`, the roots are real and equal.
- If the discriminant is less than `0`, the roots are complex and different.

Program to Find Roots of a Quadratic Equation

```c
#include <math.h>
#include <stdio.h>
int main() {
    double a, b, c, discriminant, root1, root2, realPart, imagPart;
    printf("Enter coefficients a, b and c: ");
    scanf("%lf %lf %lf", &a, &b, &c);

    discriminant = b * b - 4 * a * c;

    // condition for real and different roots
    if (discriminant > 0) {
        root1 = (-b + sqrt(discriminant)) / (2 * a);
        root2 = (-b - sqrt(discriminant)) / (2 * a);
        printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
    }

    // condition for real and equal roots
    else if (discriminant == 0) {
        root1 = root2 = -b / (2 * a);
        printf("root1 = root2 = %.2lf;", root1);
    }

    // if roots are not real
```

```
    else {
        realPart = -b / (2 * a);
        imagPart = sqrt(-discriminant) / (2 * a);
        printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart,
realPart, imagPart);
    }

    return 0;
}
```

Output

```
Enter coefficients a, b and c: 2.3
4
5.6
root1 = -0.87+1.30i and root2 = -0.87-1.30i
```

In this program, the `sqrt()` library function is used to find the square root of a number. To learn more, visit: sqrt() function.