

Positive Discriminant Implies Two Real Roots

```
// Compute discriminant.
D = b * b - 4 * a * c;
// Compute solution.
if (0 < D) { // Two real roots exist.
    x1 = (-b + sqrtf (D)) / (2 * a);
    x2 = (-b - sqrtf (D)) / (2 * a);
    printf ("x1=%f, x2=%f\n", x1, x2);
}
```

37

Handle Cases of One and Zero Real Roots

```
else if (0 == D) { // only one root
    x1 = -b / (2 * a);
    printf ("x=%f\n", x1);
} else {
    printf ("No real roots\n");
}
// End program
return 0;
}
```

38

Every Statement Must be Executed

How can we test our program?

Let's start with something simple.

Let's say that we have a **statement that is never executed by tests**.

Does the statement work correctly?

How can we know? We have no tests!

So, no, it **does not work correctly**.

At a minimum, we **must execute every statement** (called **full code coverage**).

39

What Happens When We Run the Program?

Imagine that we compile and run the program.

Take a look at the code.

The **first statement is a printf**.

The **printf** always executes, so

- we can **check whether the printf works**
- by simply **looking at the output**.

40