Sqrt in C++

```
#include <iostream>

using namespace std;

int sqrt(int x) {
    if (x == 0 || x == 1) {
        return x;
    }

    int low = 1, high = x, ans = 0;
    while (low <= high) {
        int mid = low + (high - low) / 2;
        long long mSqr = (long long) mid * mid; // Use
long long to avoid integer overflow

        if (mSqr == x) {
            return mid;
        } else if (mSqr > x) {
            high = mid - 1;
        } else {
            low = mid + 1;
            ans = mid;
        }
    }
    return ans;
}

int main() {
    cout << sqrt(37) << endl;
    return 0;
}
```

Dry Run Table:

Iteration	low	high	mid	mid*mid	ans	Action
1	1	37	19	361	0	361 > 37 → high = mid - 1 = 18
2	1	18	9	81	0	81 > 37 → high = mid - 1 = 8
3	1	8	4	16	0	16 < 37 → ans = 4, low = mid + 1 = 5
4	5	8	6	36	4	36 < 37 → ans = 6, low = mid + 1 = 7
5	7	8	7	49	6	49 > 37 → high = mid - 1 = 6
End	7	6	-	-	6	Loop ends since low > high

✅ Final Result:

```
6
```

6