

Set a bit in C++

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

int main() {
    int num = 5; // Binary: 0101
    int bitmask = 1 << 2; // Binary: 0100
    int result = num | bitmask; // Binary: 0101
    (Decimal: 5)

    cout << result << endl; // Output: 5

    return 0;
}
```

Dry Run in Table:

Step	Variable	Value	Explanation
1	num	5 (Binary: 0101)	Initialize num as 5.
2	bitmask	4 (Binary: 0100)	Compute bitmask = 1 << 2 (left shift 1 by 2 positions).
3	`num`	bitmask`	5 (Binary: 0101)
4	result	5 (Binary: 0101)	Store the result of `num
5	cout	5	Print the value of result (which is 5).

Detailed Explanation of Key Operations:

- Step 1: Initialize num**  
num is set to 5. Its binary representation is 0101.
- Step 2: Create bitmask**  
bitmask = 1 << 2 shifts the binary 0001 two positions to the left.  
The result is 0100, which is 4 in decimal.
- Step 3: Perform Bitwise OR (|)**  
result = num | bitmask →  
0101 (num)  
0100 (bitmask)  
The result of 0101 | 0100 is 0101, which is 5 in decimal.
- Step 4: Store and Output result**  
The result of the bitwise OR operation is 5.  
The program prints the result:  
**Output: 5**

Final Output:

5