C++ Basics

1. Give the **bit** value of x in these C++ statements (assume 8 bits). Show your work by giving the binary value before and after the operation (e.g., for x = ~5, show 0000 0101 → 1111 1010)
   a) x = 0 & 1;
   b) x = 0 | 1;
   c) x = 3 ^ 1;
   d) x = ~3;
   e) x = 3 << 2;
   f) x = 3 >> 1;
2. Rewrite the Python program below in C++ (Don't forget the comment).

```python
#Python function example
def add_one(num):
    ans = num + 1
    return ans
```

1. .
   1. 0000 0000
   2. 0000 0001
   3. 0000 0011 ^ 0000 0001 = 0000 0010
   4. ~0000 0011 = 1111 1100
   5. 0000 0011 << 2 = 0000 1100
   6. 0000 0011 >> 1 = 0000 0001
2.

```cpp
int add_one(int num){
    int ans = 0;
    ans = num +1;
    return ans;
}
```