P2 – Adding and Subtracting

2. Preparation

```cpp
void printState(bool n) {
    cout << ((n) ? "True" : "False") << endl;
}

void printBin(bool n) {
    cout << ((n) ? "1" : "0") << endl;
}




bool AND(bool a, bool b) {
    return a && b;
}

bool OR(bool a, bool b) {
    return a || b;
}

bool XOR(bool a, bool b) {
    return (a != b);
}

bool NAND(bool a, bool b) {
    return NOT(AND(a, b));
}

bool NOR(bool a, bool b) {
    return NOT(OR(a, b));
}

bool NOT(bool a) {
    return !a;
}



void halfAdder(bool a, bool b, bool &s, bool &c) {
    s = XOR(a, b);
    c = AND(a, b);
}
```

Cin

A

B

S

Cout

Half Adder

Half Adder

A0, B0

A1, B1

A7, B7

Half Adder

Full Adder

Full Adder

C0

C1

...

C7

S0

S1

S7

Carry