ECE451 Homework #9

1. (One's Complement Numbers) Perform the following binary additions, assuming the numbers are in one's complement form.
    a. 0001 + 0100
    b. 1111 + 0010
    c. 0011 + 1010
    d. 1011 + 1010

2. (Two's Complement Numbers) Perform the same binary additions as in Exercise 1, but this time assuming the numbers are in two's complement form.

5.5 (Subtraction Logic) The truth table for a 1-bit combinational binary subtractor, analogous to the half adder, computing D(ifference) = A minus B, with BL (borrow-from-left), is

A	B	D	BL
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0

a. Design a 1-bit combination binary subtractor, comparable to the full adder, with two data inputs (A, B), a borrow from the right input (BI), a borrow request to the left output (BL), and a difference output (D).
b. Show how your design can be cascaded to form multi-bit subtractors.
c. Does the subtractor work correctly for negative two's complement numbers?
d. How is a subtraction *underflow* condition indicated?