In-Class Exercise #1 (number systems)　　　ECE130

1　Convert each of the following decimal numbers to their binary equivalent.

Decimal	Binary
35	
76	

2　Convert each of the following binary numbers to their 2's complement counterparts.

Binary number	2's complement
1000	
1011	
10101000	
0111010	

3　Convert each of the following 2's complement numbers to their decimal counterparts.

2's complement	Positive binary	Decimal
010001		
111010		
00001010		
11110110		

4　Carry out the following additions and indicate if there is overflow for unsigned or 2's complement representations.

Addend	Augment	Sum Binary result	Decimal Addition Unsigned	signed	Overflow (Yes/No) Unsigned	2's compl
0000	1000					
1100	1010					
0111	1110					

5　Carry out the following subtraction and indicate if there is overflow for unsigned or 2's complement representations.

Minuend	Subtrahend	Difference Binary result	Decimal Subtraction Unsigned	signed	Overflow (Yes/No) Unsigned	2's compl
0111	0010					
1000	0110					
1100	1110					

6　Use the simple rule to know if the following operations cause overflow.

0 1111111
+ 01000000

11101100
+ 10100000