HW-1 Due Friday Jan. 16 ECE2030a Name_____

Email _____

Bring this homework to class on Friday Jan. 16, but do not turn it in until the end of class. Note that A' is a notation for NOT(A).

#1. Fill in the truth table below for the logic function Out = A+BC

A	B	C	Out
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

#2. Simplify the Boolean expression so that it has only three parameters (out of A, A', B, B', C, C'):

A'C + ABC = _____

= _____

= _____

#3. Fill in the truth table for the Output of the function in problem #2.

A	B	C	Out
0	0	0	
0	0	1	
0	1	0	
0	1	1	
1	0	0	
1	0	1	
1	1	0	
1	1	1	

#4. Using DeMorgan's Theorem, express the function below as indicated.

F(A,B,C) = AC' + A'C' + BC'

_____

_____

a. With only OR and Complement operations: _____

_____

_____

b. With only AND and Complement operations: _____

#5. In order to design a single stage logic circuit, we need to express the logic function so that only single literals are complemented [no complemented parentheses like (A+B)']. Express the following logic functions that way (use DeMorgan's theorem):

(A'+ B)'C + ((D + E')F)' = _____

= _____

= _____

= _____

(AB(C + D)')' = _____

= _____

= _____

= _____

= _____