ECE231: Digital Logic Worksheet

1. Draw a circuit diagram for $AB + \overline{C}$

2. Simplify the following boolean expressions:

a) $A + 1$ _____
b) $A + 0$ _____
c) $A + A$ _____
d) AA _____
e) $A\overline{A}$ _____
f) $A \cdot 1$ _____
g) $A \oplus A$ _____
h) $A \oplus 1$ _____

3. Fill each K-map and give a minimal SOP. Mark groupings on the grid.

a) $F = AB + AC + AD + BD$

CD / AB	00	01	11	10
00				
01				
11				
10				

b) $F = \overline{A}$

CD / AB	00	01	11	10
00				
01				
11				
10				

c) $F = \overline{B}$

CD / AB	00	01	11	10
00				
01				
11				
10				

d) $F = ABC$

CD / AB	00	01	11	10
00				
01				
11				
10				

e) $F = B\,C\,\overline{D}$

CD / AB	00	01	11	10
00				
01				
11				
10				

f) $F = A(B + \overline{C})$

BC / A	00	01	11	10
0				
1				

g) $F = A$

BC / A	00	01	11	10
0				
1				

h) $F = B$

BC / A	00	01	11	10
0				
1				

i) $F = ABC$

BC / A	00	01	11	10
0				
1				

j) $F = B\overline{C}$

BC / A	00	01	11	10
0				
1				