Asn 2 #5-12
#1-12

Brandon Anderson

5| 1110 1101
$2^7+2^6+2^5+2^3+2^2+2^0$
$128+64+32+8+4+1$
237_{10}

6| 1110 1101
0001 0010
0001 0011
$2^4+2^1+2^0$
$16+2+1$
-19

7| 1019_{10}
$1019/256 = 3$ $3 \cdot 256 = 768$
$1019-768 = 251$ $251/16 = 15$
$15 \cdot 16 = 240$ $251-240 = 11$
3 15 11
0x3FB

8| -2222
$2^{11} = 2048$ $2222-2048 = 174$
$2^7 = 128$ $174-128 = 46$
$2^5 = 32$ $46-32 = 14$
$2^3 = 8$ $14-8 = 6$
$2^2 = 4$ $6-4 = 2$
1000 1010 1110
0111 0101 0001
0111 0101 0010
7 5 2
0x752

9| FAB
$15 \cdot 16^2 + 10 \cdot 16^1 + 11$
4011

10| 1111 1010 1011
0000 0101 0100
0000 0101 0101
0 5 5
$0 \cdot 16^2 + 5 \cdot 16^1 + 5 \cdot 16^0$
-85

11| 1100 1010 1110

12| 1011 1010 1011 1110
0100 0101 0100 0001
0100 0101 0100 0010
4 5 4 2
0x4542

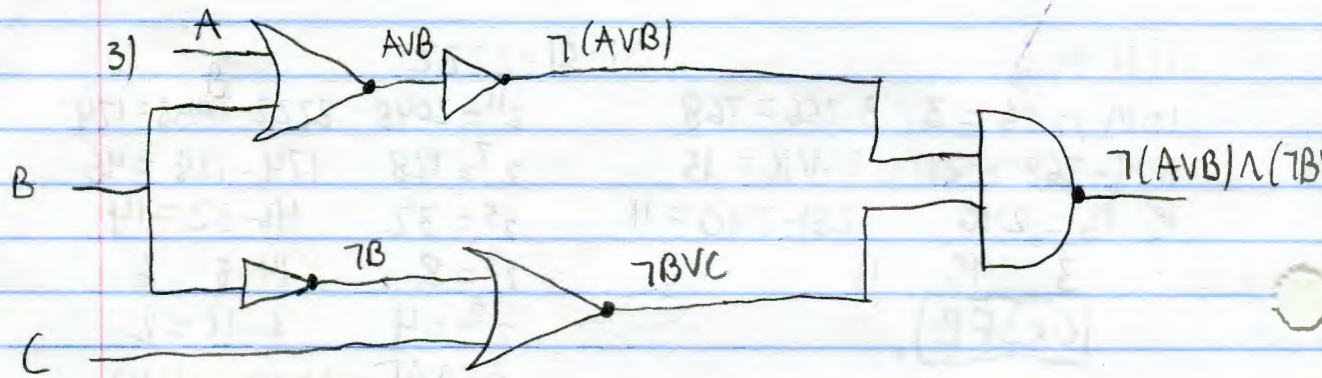
1) $\neg(0 \vee 1) \wedge (\neg 1 \vee 1) \vee 0$
$0 \wedge 1 \vee 0$
$0 \vee 0$
0

→

2)

A	B	C	logic function
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

3)



4)

A	B	C	¬(AvB)	(¬BvC)	¬(AvB)∧(¬BvC)
0	0	0	1	1	1
0	0	1	1	1	1
0	1	0	0	0	0
0	1	1	0	1	0
1	0	0	0	1	0
1	0	1	0	1	0
1	1	0	0	0	0
1	1	1	0	1	0

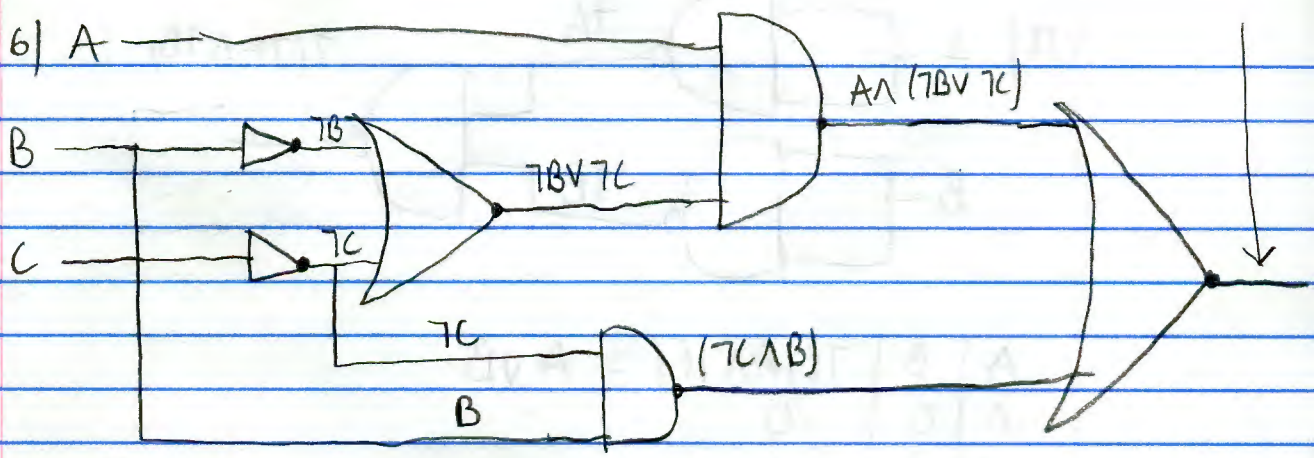
5) a) $A \cdot ((\neg B) \vee (\neg C)) \vee (\neg C \cdot B)$

b) $A \cdot ((\neg B) + (\neg C)) + (\neg C \cdot B)$

c) $A \cdot (\overline{B} + \overline{C}) + \overline{C} \cdot B$

$A \wedge (\neg B \vee \neg C) \vee (\neg C \wedge B)$

6)



7)

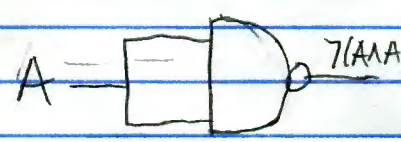
A	B	C	$(\neg B \vee \neg C)$	$A \wedge (\neg B \vee \neg C)$	$\neg C \wedge B$	$A \wedge (\neg B \vee \neg C) \vee (\neg C \wedge B)$
0	0	0	1	0	0	0
0	0	1	1	0	0	0
0	1	0	1	0	1	1
0	1	1	0	0	0	0
1	0	0	1	1	0	1
1	0	1	1	1	0	1
1	1	0	1	1	1	1
1	1	1	0	0	0	0

8) $(\neg A \wedge B \wedge \neg C) \vee (A \wedge \neg B \wedge \neg C) \vee (A \wedge \neg B \wedge C) \vee (A \wedge B \wedge \neg C)$

$\bar{A}B\bar{C} + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C}$

9) $ABC + \overline{A\bar{B}C} + \bar{A}BC + \bar{A}B\bar{C} + \bar{A}B\bar{C} + A\bar{B}C + A\bar{B}\bar{C} + AB\bar{C}$

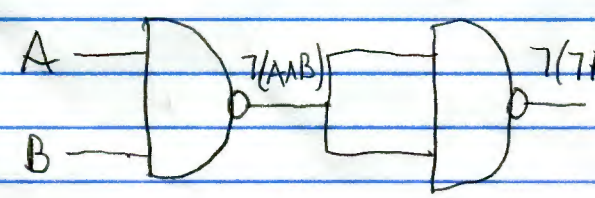
10)



A	$\neg(A \wedge A)$
0	1
1	0

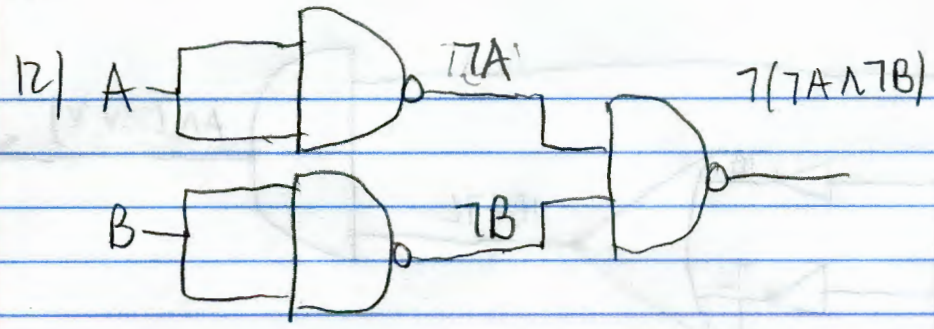
$\neg(A \wedge A) = \neg A \vee \neg A = \neg A$

11)



A	B	$\neg(\neg A \vee \neg B)$
0	0	0
0	1	0
1	0	0
1	1	1

$\neg(\neg A \vee \neg B) = A \wedge B$

12) 

A	B	¬(¬A∧¬B) = A∨B
0	0	0
0	1	1
1	0	1
1	1	1