

HW 7 solution

1. (a) 5.625 (d) 7.875
 (b) 7.75 (e) 8.3125
 (c) 10.25 (f) 21.375

2. ~~2~~

- (a) $17_{10} = 10001_2 = 0001011)_{BCD}$
 (b) $8.5_{10} = 1000.1_2 = 1000.0101_{BCD}$
 (c) $9.75_{10} = 1001.11_2 = 1001.0110101_{BCD}$
 (d) $73.03125_{10} = 1001001.00001_2$
 (e) $67.375_{10} = 1000011.011_2$

3.

- (a) $173_{10} = 10101101_2 = 255_8 = AD_{16}$
 (b) $299.5_{10} = 100101011.1_2 = 453.4_8 = 12B.8_{16}$
 (c) $735.75 = 101101111.11_2 = 1337.6_8 = 2DF.C_{16}$
 (d) $313.0625_{10} = 100111001.0001_2 = 471.04_8 = 139.1_{16}$
 (e) $112.25_{10} = 1110000.01_2 = 160.2_8 = 70.4_{16}$

4.

A	B	A+B	$\bar{A} + AB$	$(A+B)(\bar{A} + AB)$
0	0	0	1	0
0	1	1	1	1
1	0	1	0	0
1	1	1	1	1

5.

A	B	C	$(ABC + ABC\bar{C} + A\bar{B}\bar{C} + A\bar{B}C)$
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

$$6. \quad (a) \quad F = AB + (\bar{C} + A)\bar{D} = \overline{(\bar{A} + \bar{B})(C\bar{A} + D)}$$

$$(b) \quad F = A(\bar{B} + C) + D = \overline{(\bar{A} + B\bar{C})\bar{D}}$$

$$(c) \quad F = A\bar{B}C + A(B+C) = \overline{(\bar{A} + B + \bar{C})(\bar{A} + \bar{B}\bar{C})}$$

$$(d) \quad F = \overline{(A+B+C)(A+\bar{B}+C)(\bar{A}+B+\bar{C})}$$

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

$$(e) \quad F = \overline{ABC + A\bar{B}C + \bar{A}B\bar{C}}$$

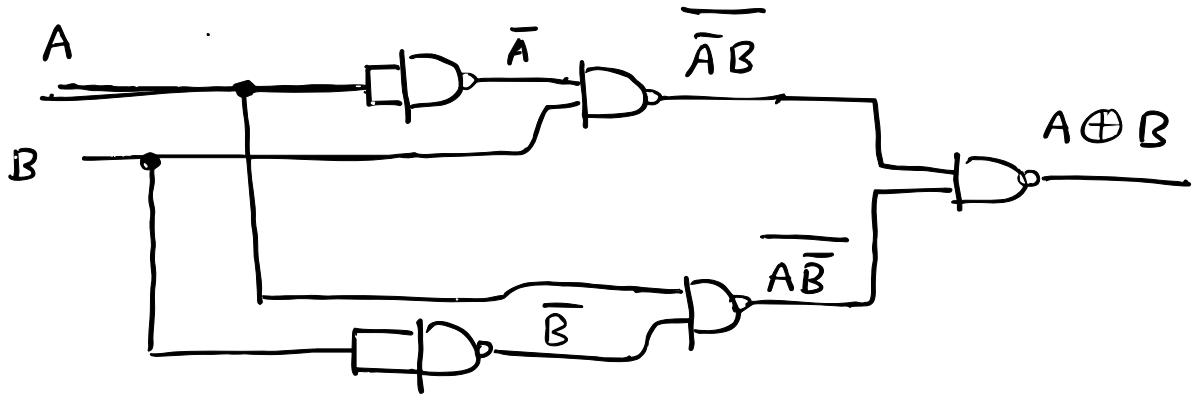
$$= \overline{(\bar{A} + \bar{B} + \bar{C})(\bar{A} + B + \bar{C})(A + \bar{B} + C)}$$

$$7.$$

A	B	$A \oplus B$
0	0	0
0	1	1
1	0	1
1	1	0

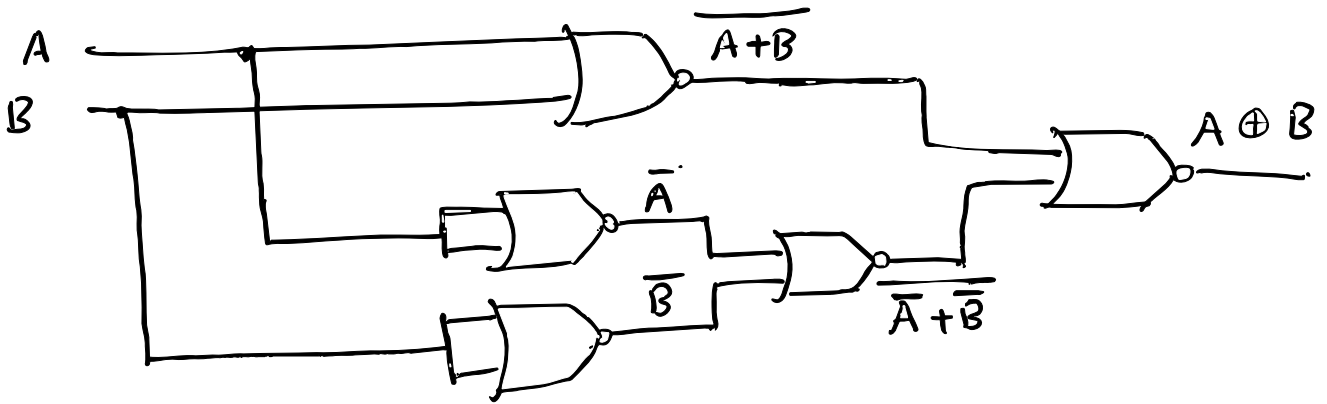
$$\Rightarrow A \oplus B = A\bar{B} + \bar{A}B = \overline{(\bar{A}\bar{B})(\bar{A}B)}$$

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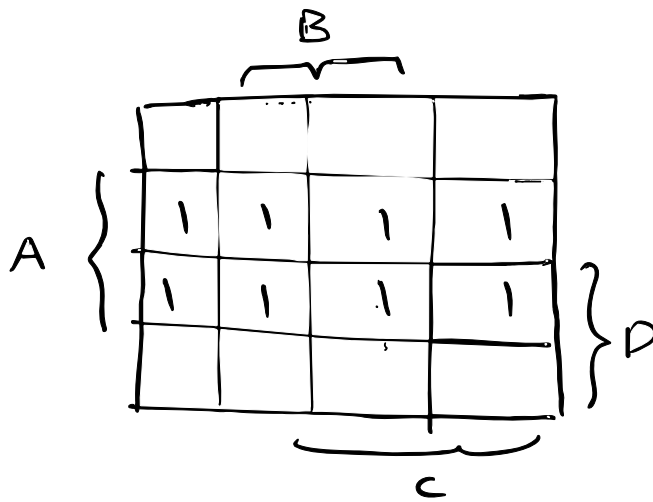
8.

$$A \oplus B = (A+B)(\overline{A} + \overline{B}) = \overline{\overline{(A+B)} + \overline{(\overline{A} + \overline{B})}}$$



9.

(a)

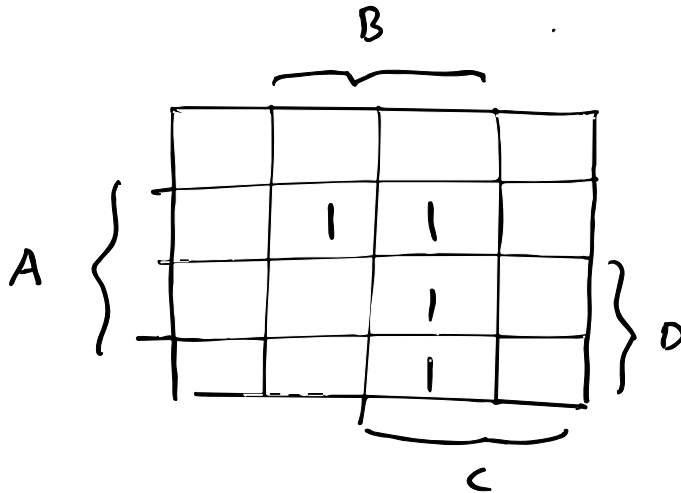


(b) $F = A$



10.

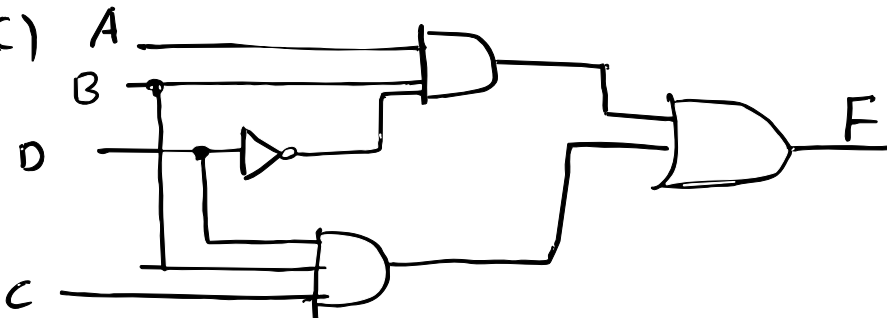
(a)



(b)

$F = AB\bar{D} + BCD$

(c)



11.

