

205728A

今 江 外

演習①

$$Y_1 = AB + A\bar{B}$$

A \ B	0	1
0		
1	1	1

$$Y_1 = A$$

$$Y_2 = AB + \bar{A}\bar{B}$$

A \ B	0	1
0	1	
1		1

$$Y_3 = \bar{A}\bar{B}C + A\bar{B}C$$

A \ BC	00	01	11	10
0		1		
1		1		

$$Y_3 = BC$$

$$Y_4 = \bar{A}\bar{B}C + \bar{A}BC + A\bar{B}C + A\bar{B}C$$

A \ BC	00	01	11	10
0	1		1	
1		1		1

$$Y_5 = \bar{A}\bar{B}C + \bar{A}BC + A\bar{B}C + ABC$$

A \ BC	00	01	11	10
0			1	1
1			1	1

$$Y_5 = B$$

$$Y_6 = \bar{A}\bar{B}\bar{C}\bar{D} + A\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C\bar{D} + A\bar{B}C\bar{D}$$

AB \ CD	00	01	11	10
00	1			1
01				
10	1			1
11				

$$Y_6 = \overline{BD}$$

$$= \overline{B+D}$$

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No.

Date

$$Y_7 = \bar{A}\bar{B}CD + \bar{A}BCD + A\bar{B}CD + ABCD$$

AB  
CD

1	1	1	1

$$Y_7 = CD$$

演習②

$$1. \bar{A}\bar{B}C + \bar{A}BC + A\bar{B}C + ABC = Y_1$$

$$2. \bar{A}BC + \bar{A}\bar{B}C + A\bar{B}C + \bar{A}BC = Y_2$$

$$Y_2 = (\bar{A}+B) \cdot C + B$$

$$3. \bar{A}BC + \bar{A}BC + ABC = Y_3$$

$$Y_3 = B + BC$$

$$4. A\bar{B}C + A\bar{B}C + \bar{A}BC + \bar{A}BC + ABC$$

$$Y_4 = AC + B + C$$

$$5. \bar{A}BCD + A\bar{B}CD + ABCD + \bar{A}BCD + ABCD$$

$$Y_5 = BD + BC$$

$$Y_5 = B(D+C)$$

$$6. Y = \bar{A}\bar{B}CD + \bar{A}BCD + \bar{A}BCD + \bar{A}BCD + \bar{A}BCD + \bar{A}BCD$$

$$= \bar{A}B + \bar{B} \cdot D$$

$$= \bar{B}(\bar{A} + D)$$

## 演習③

1. CD/AB

CD \ AB	00	01	11	10
00	1	1		1
01	1			1
11	1		1	1
10	1		1	1

$$Y_1 = \bar{B} + AC + \bar{A}\bar{C}\bar{D}$$

~~\* AC + B~~Y<sub>2</sub>

CD \ AB	00	01	11	10
00		1		1
01	1		1	
11		1		1
10	1		1	

$$Y_2 = 0100 + 1000 + 0001 + 1101 + 0111 + 1011 + 0010 + 1110$$

$$Y_2 = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}B\bar{C}\bar{D} + A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D} + \bar{A}B\bar{C}D + \bar{A}B\bar{C}D + \bar{A}\bar{B}C\bar{D} + \bar{A}\bar{B}C\bar{D}$$

③-2

確認はした。以上のY<sub>1</sub>, Y<sub>2</sub>はさらに簡単化できる。



## 演習④

A	B	C	Y
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

真理表から論理関数

$$Y = \bar{A}BC + A\bar{B}C + ABC\bar{C} + ABC$$

カルノー図

A \ BC	BC			
	00	01	11	10
0			1	
1		1	1	1

Red annotations: Circles around (0,11), (1,01), (1,11), and (1,10). Arrows labeled BC, AC, and AB point to these groups.

簡略化  $Y = AB + AC + BC$

## 演習⑤

1.  $AB$  \  $CD$

	00	01	11	10
00	*	1	*	*
01		*	*	*
11	*	*	*	*
01		*	*	1

Red annotations: Circles around (0,01), (0,11), (1,01), (1,11), and (1,10). Arrows labeled A and B point to these groups.

$$Y = A + B$$

2.  $AB$  \  $CD$

	00	01	11	10
00	*		1	*
01		*	*	*
11	1	*	*	*
10	*	*	*	*

Red annotations: Circles around (0,00), (0,10), (1,00), and (1,10). Arrows labeled A, C, and BD point to these groups.

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