(N53a)

x_1	x_2	f
1	1	0
1	0	1
0	1	0
0	0	1

→ 0101 → 1010 — да

б) 10010110 → 01101001 → 10010110 — да

в) 01100110 — [redacted] нет

г) нет

(N55)

а)

x_1	x_2	f
0	0	1
0	1	1
1	0	0
1	1	1

$\alpha = 1001$

1101
0111
1011
1111

$x_1 \to x_2 = x_1 \oplus x_1 \cdot x_2 \oplus 1$

$x_i = \begin{cases} x_1 & \alpha_i = 1 \\ \bar{x}_1 & \alpha_i = 0 \end{cases} \Rightarrow$ x_2 denote $\bar{x}_1$

x_2 denote $\bar{x}_2$

$\bar{x}_2 \oplus \bar{x}_1 \cdot \bar{x}_1 \oplus 1 = \overline{x_1 \oplus \bar{x}_1 \vee x_1} = x \oplus \bar{x}_1 = 1$

б)

0	0	0	1	1	1	1	1
0	0	1	0	0	0	1	1
0	1	0	1	0	0	1	0
0	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1
1	0	1	1	1	1	0	1
1	1	0	1	0	1	1	1
1	1	1	0	1	0	1	1

$1 \oplus x_3 \oplus x_2 x_3 \oplus x_1 \oplus x_1 x_2 \oplus$
$\oplus x_1 x_2 x_3$

N56

а)

t			
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	1	1	1
1	1	1	0
0	0	1	1
1	1	0	1

б) $0101 \leq 0111$

$01 \leq 01$ $01 \leq 11$

$0 \leq 1$ $1 \leq 0$ $0 \leq 1$ $1 \leq 1$ => монотонна

в) $0010 \leq 0011$

$00 \leq 10$ $00 \leq 11$

$0 \leq 0$ $1 \leq 0$ $0 \leq 0$ $1 \leq 1$ => не монотонна

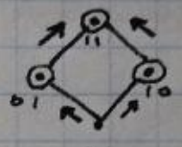
$0000 \leq 1101$

$00 \leq 00$ $11 \leq 01$ нет =>

=> не монотонна

N57

а) $x_1 \vee x_2$ — 0111



=> да, монотонна

б) $x_1 \sim x_2$

=> нет, не монотонна

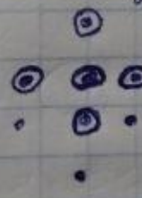
в)

0	1	0	1
0	0	1	1
0	0	0	1
0	1	1	0

=> нет, не монотонна

г)

0	1	0	1	0	1	0	1
0	0	1	1	0	0	1	1
0	0	0	0	1	1	1	1
0	0	1	1	0	1	1	1



=> да, монотонна

№60

а) $f(x_1 \dots x_n) = x_1 \oplus x_2 \oplus \dots \oplus x_n$

• $n=1$: $f(x_1) = x_1 \Rightarrow$ монотонна

• $n=2$: $f(x_1, x_2) = x_1 \oplus x_2$ — не монотонна

0	0	1 | 1
0	1	1 | 0

• $n=3$: $f(x_1, x_2, x_3) = x_1 \oplus x_2 \oplus x_3$ — не монот.

0	0	0	1 | 1
0	0	1	1 | 0

• $n=4$:

№64

а) $f(x_1, x_2 \dots x_n) = \underbrace{f(0, x_2 \dots x_n)}_{\in M} \vee \underbrace{f(1, x_2 \dots x_n)}_{\in M}$.

Пусть $x_1 = 0$: $f(0, x_2 \dots x_n) = f(0 \dots x_n) \vee (0 \cdot f(1 \dots x_n))$

$f(0 \dots x_n)$

Пусть $x_1 = 1$: $f(1 \dots x_n) = f(0 \dots x_n) \vee (1 \cdot f(1 \dots x_n))$

$f(0 \dots x_n) \vee f(1 \dots x_n)$

если 1

№65

а) $\alpha = \overset{\alpha_1\ \alpha_2}{00} \le \beta = \overset{\beta_1\ \beta_2}{10}$

$x_1 \oplus x_1 x_2 \oplus 1 = f(x_1, x_2)$

$x \oplus x \cdot 0 \oplus 1 = x \oplus 0 \oplus 1 =$

$= x \oplus 1 = \overline{x}$.

x_i { 0 если $\alpha_i = \beta_i = 0$
1 если $\beta_i = \alpha_i = 1$
$\alpha_i = 0$, $\beta_i = 1$ $\Rightarrow x_i = x$

N67

а) $A = T_0 \cap T_1$

x_1 ..... x_n	f	
0 0	0	1
0 1	1	2
	⋮	⋮
	⋮	2^{2^n-2}
	⋮	⋮
1 1	1	2^{2^n-1}

2^n

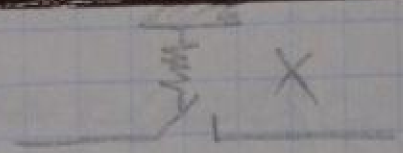
$= 2^{2^n - 2^n}$

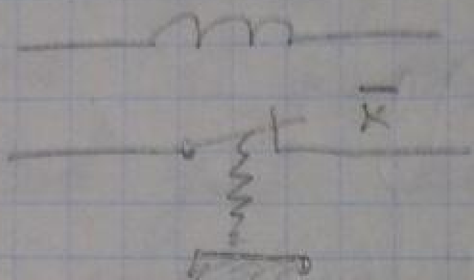
N68

а) $F = \{ x_1 \to x_2,\ x_1\ x_2 \}$

	T_0	T_1	L	S	M
$x_1 \to x_2$	−	+	−	−	−
$x_1\ x_2$	+	+	−	−	+

⇒ не полна





N70
абв

N71