Zadanie 1 $\Sigma [0,1,2,6,8,10,11,12 ; (4,14)]$

KACPER MAJCHER
92939

0	0000	1
1	0001	1
2	0010	1
3	0011	0
4	0100	- 1
5	0101	0
6	0110	1
7	0111	0
8	1000	1
9	1001	0
10	1010	1
11	1011	1
12	1100	1
13	1101	0
14	1110	- 1
15	1111	0

Do zadania zrobione 2 schematy podpunkt A i C

Pliki w paczce

zad1-A i zad1-C

ab \ cd	00	01	11	10
00	1	1	0	1
01	1	0	0	1
11	1	0	0	1
10	1	0	1	1

A	B	C	D
0	0	0	0
0	1	0	0
1	1	0	0
1	0	0	0
0	0	1	0
0	1	1	0
1	1	1	0
1	0	1	0

$\bar{D}$

A	B	C	D
0	0	0	0
0	0	0	1

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

A	B	C	D
1	0	1	1
1	0	1	0

A

a) $X = \bar{D} + \bar{A}\bar{B}\bar{C} + A\bar{B}C$

Zamiana na NAND

c) $\overline{\overline{\bar{D} + \bar{A}\bar{B}\bar{C} + A\bar{B}C}} = \overline{\bar{D} \cdot \bar{A}\bar{B}\bar{C} \cdot A\bar{B}C}$

Zadanie 2 $y = \sum [0,3,5,12,15,(1,2,4,7,8,11,13,14)]$

d)

0	0000	1	
1	0001	-	
2	0010	-	0
3	0011	1	
4	0100	-	
5	0101	1	
6	0110	0	
7	0111	-	
8	1000	-	0
9	1001	0	
10	1010	0	
11	1011	-	0
12	1100	1	
13	1101	-	
14	1110	-	0
15	1111	1	

Plik ze schematem Zadl-D

ab \ cd	00	01	11	10
00	1	-	1	-
01	-	1	-	0
11	1	1	1	-
10	-	0	-	0

A B C D
1 0 0 0
1 0 0 1
1 0 1 1
1 0 1 0
$\bar{A}$ B

A B C D
0 0 1 0
0 1 1 0
1 1 1 0
1 0 1 0
$\bar{C}$ D

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

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

Zadanie 3 $y = \Sigma[1,4,9,10,13,15;(2,8)]$

0	0 0 0 0	0
1	0 0 0 1	1
2	0 0 1 0	-
3	0 0 1 1	0
4	0 1 0 0	1
5	0 1 0 1	0
6	0 1 1 0	0
7	0 1 1 1	0
8	1 0 0 0	- 1
9	1 0 0 1	1
10	1 0 1 0	1
11	1 0 1 1	0
12	1 1 0 0	0
13	1 1 0 1	1
14	1 1 1 0	0
15	1 1 1 1	1

AB \ CD	00	01	11	10
00	0	1	0	-
01	1	0	0	0
11	0	1	1	0
10	-	1	0	1

A B C D
0 0 0 1
1 0 0 1
$\bar{B}\bar{C}D$

A B C D
1 0 0 0
1 0 1 0
$A\bar{B}\bar{D}$

A B C D
0 1 0 0
$\bar{A}B\bar{C}\bar{D}$

A B C D
1 1 0 1
1 1 1 1
A B D

c)

$$X = ABD + \bar{B}\bar{C}D + \bar{A}B\bar{C}\bar{D} + A\bar{B}\bar{D}$$

$$\overline{ABD + \bar{B}\bar{C}D + \bar{A}B\bar{C}\bar{D} + A\bar{B}\bar{D}} = \overline{ABD} \cdot \overline{\bar{B}\bar{C}D} \cdot \overline{\bar{A}B\bar{C}\bar{D}} \cdot \overline{A\bar{B}\bar{D}}$$

d)

AB \ CD	00	01	11	10
00	0	1	0	-
01	1	0	0	0
11	0	1	1	0
10	-	1	0	1

A B C D
0 0 1 0
0 0 0 0
A B D

A B C D
0 0 1 1
1 0 1 1
B C̄ D̄

A B C D
0 1 0 1
0 1 1 1
A B̄ D̄

A B C D
1 1 0 0
1 1 1 0
Ā B̄ D

A B C D
0 0 1 1
0 0 1 0
0 1 1 1
0 1 1 0
A C̄

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

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

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