N1.

A ≡ 1б. - и.

B ≡ 2б. - и

C ≡ -1б. - и.

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

$= \bar{A} \vee (\bar{B} \wedge \bar{C})$

Жора - верно.

Эрда - верно.

Огород - ложь

Парад - верно.

N2.

а) $x \to y = \bar{x} \vee y$

x	y	$x \to y$	$\bar{x} \vee y$
0	0	1	1
1	0	0	0
0	1	1	1
1	1	1	1

5) $x \wedge y = \overline{\bar{x} \vee \bar{y}}$

x	y	$x \wedge y$	$\overline{\bar{x} \vee \bar{y}}$
0	0	0	0
1	0	0	0
0	1	0	0
1	1	1	1

№3.

$$(x \wedge z) \vee (x \wedge \bar{z}) \vee \overline{\bar{x} \to \bar{y}} =$$

$$= (x \wedge z) \vee (x \wedge \bar{z}) \vee \overline{x \vee \bar{y}} =$$

$$= (x \wedge z) \vee (x \wedge \bar{z}) \vee (\bar{x} \wedge y) =$$

$$= x \wedge (z \vee \bar{z}) \vee (\bar{x} \wedge y) =$$

$$= x \vee (\bar{x} \wedge y) = (x \vee y) \wedge (x \vee \bar{x}) -$$

x	y	$x \vee (\bar{x} \wedge y) = x \vee y$
0	0	0
1	0	1
0	1	
1	1	

№4

$$x \vee (y \leftrightarrow z) = (x \vee y) \leftrightarrow (x \vee z)$$

x	y	z	$x \vee (y \leftrightarrow z)$	$(x \vee y) \leftrightarrow (x \vee z)$
0	0	0	1	1
1	0	0	1	1
0	1	0	.	.
0	0	1	.	.
1	1	0		
0	1	1		
1	0	1		
1	1	1		

$$x \leftrightarrow \equiv (x \wedge y) \vee (\bar{x} \wedge \bar{y})$$

№5.

$MAJ(x_1, x_2, x_3)$ $(x_1 \wedge x_2) \vee (x_1 \wedge x_3) \vee$

x_1	x_2	x_3	f	$\vee (x_2 \wedge x_3)$
0	0	0	0	
0	0	1	0	
0	1	0	0	

1 0 0 0

1 1 0 1

0 1 1 1

1 0 1 1

1 1 1 1

N6.

a) $f(x_1, .., x_n)$ ...

N7.

$f(x_1, x_2, x_3) = 10100101$

x_1	x_2	x_3	f
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

x_2 - фиктивн.

$x_1 \longleftrightarrow x_2$

№8.

а) $f(x_1, x_2) = x_1 \oplus x_2 \oplus (x_1 \wedge x_2)$

x	y	f
0	0	0
0	1	1
1	0	1
1	1	1

$x_1 \vee x_2$

№9

~~Г~~ $\overline{f(x,y)} = f(\bar{x}, \bar{y})$

x	y	$f(x,y)$	$\overline{f(x,y)}$	$f(\bar{x}, \bar{y})$
0	0	a	$\bar{a}$	d
0	1	b	$\bar{b}$	c
1	0	c	$\bar{c}$	b
1	1	d	$\bar{d}$	a

$$x \leftrightarrow \equiv (x \wedge y) \vee (\bar{x} \wedge \bar{y})$$

$$\overline{a \leftrightarrow b} = (\bar{a} \vee \bar{b}) \wedge (a \vee b)$$

$$(\bar{a} \vee b) \wedge [a \vee b) \wedge (\bar{a} \vee \bar{c}) \wedge (a \vee c)$$