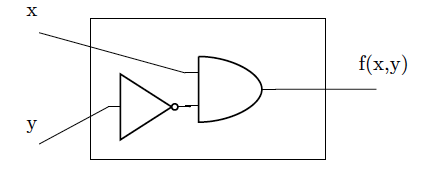
Wojciech Kubiak

Zadanie 1.

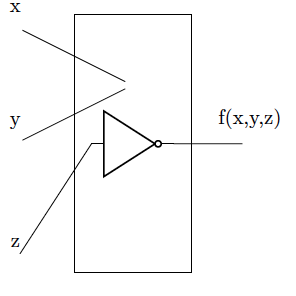
1. f (x, y) = (¬ x ¬ y) ¬ ( y ¬ x ) = ¬ y x

|  |  |  |
| --- | --- | --- |
| x | y | x |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

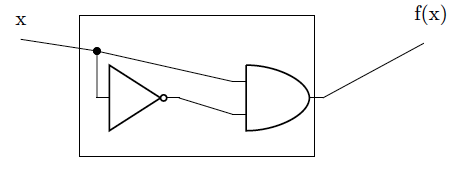


1. f ( x, y, z ) = ¬ z ( x y ¬ z ) = ¬ z

|  |  |  |  |
| --- | --- | --- | --- |
| x | y | z | ¬ z |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 0 |



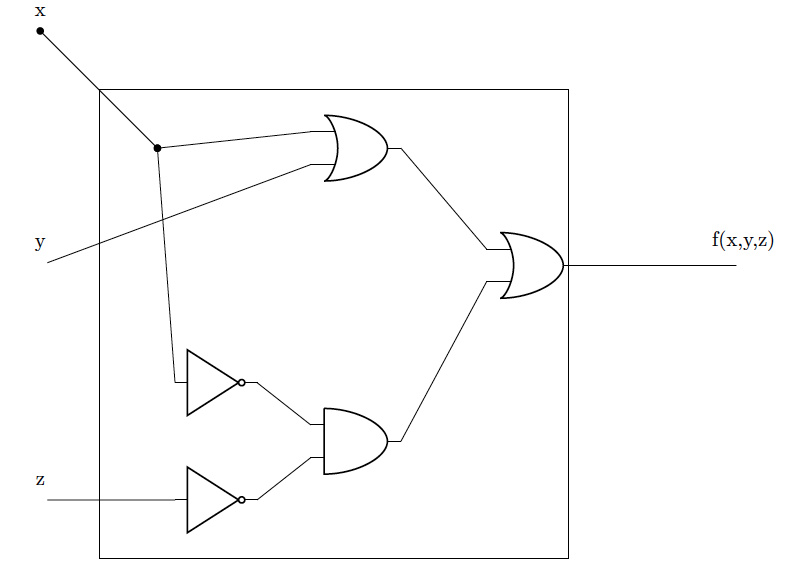
1. f ( x ) = ¬ x x



|  |  |
| --- | --- |
| x | ¬ x x |
| 0 | 0 |
| 1 | 0 |

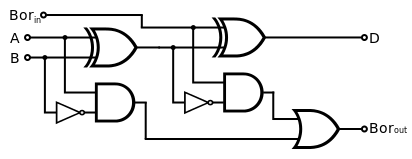
|  |  |  |
| --- | --- | --- |
| x | y | x |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

1. f ( x, y, z ) = x y ( ¬ x ¬ z )



|  |  |  |  |
| --- | --- | --- | --- |
| x | y | z | x y ( ¬ x ¬ z ) |
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 |

Zadanie 2.



= x

A = y

Bor = z

D = f ( x, y, z )

= g ( x, y, x )

xor ( a, b ) = ( a b ) ( ¬ a ¬ b )

f ( x, y, z ) = ((( x y ) (¬ x ¬ y )) z ) (¬ (( x y ) ( ¬ x ¬ y )) ¬ z) =

= ((( x y ) (¬ x ¬ y )) z ) ((( ¬ x ¬ y) ( x y ) ¬ z =

|  |  |  |  |
| --- | --- | --- | --- |
| x | y | z | (¬ x y) (¬ x z ) ( y z ) |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

= ( x y z ) ( x ¬ y ¬ z ) (¬ x y ¬ z ) (¬ x ¬ y z )

g ( x, y, z ) = ((¬ x y) (¬ ((x y) (¬ x ¬ y)) z )) (¬ ( ¬ x y) ¬ ( ¬ ((x y) (¬ x ¬ y)) z )) = (¬ x y) (¬ x z) (( y z)

|  |  |  |  |
| --- | --- | --- | --- |
| x | y | z | (¬ x y) (¬ x z ) ( y z ) |
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

Zadanie 3.

|  |  |  |  |
| --- | --- | --- | --- |
| a | b | c | a ¬ c ¬ b |
| 0 | 0 | 0 | 0 |
| 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 | 0 |

f ( a, b, c ) = ¬ ( a b c ) (¬ a ¬ b c ) ( a ¬ c ) ( a ¬ b c ) =

= (¬ a ¬ b ¬ c ) (¬ a ¬ b c ) ( a ¬ c ) ( a ¬ b c ) =

= (a ¬ c ) (¬ b ) (¬ b ) (a ¬ b ) =

= a ¬ c ¬ b