14/12 2021

No.

Date :

UAS Sistem Digital

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1a. $\bar{a}\bar{b} + ab + \bar{a}b = \bar{a} + b$ (benar)

$\bar{a}(\bar{b} + b) + ab$

$\bar{a}(1) + ab$

$\bar{a} + ab$

$\bar{a} + b$

b. $\bar{a} + a(\overline{\bar{a}b + \bar{b}c}) = \bar{a} + b + \bar{c}$ (salah)

$\bar{a} + a(\overline{\bar{a}b}) \cdot (\overline{\bar{b}c})$

$\bar{a} + a(a + \bar{b}) \cdot (b + \bar{c})$

$\bar{a} + aa + a\bar{b} \cdot ab + a\bar{c}$

$\bar{a} + a + a\bar{b} \cdot ab + a\bar{c}$

$\bar{a} + a(\bar{b} \cdot b) + \bar{c}$

$\bar{a} + \bar{c}$

2. Persamaan benar / salah menggunakan peta Karnaugh

$a\bar{b} + \bar{b}\bar{c} + \bar{a}\bar{c} = a\bar{b} + \bar{a}\bar{c}$

	$\bar{c}$	c
$\bar{a}\bar{b}$	1	0
$\bar{a}b$	1	0
ab	0	0
$a\bar{b}$	1	1

	$\bar{c}$	c
$\bar{a}\bar{b}$	1	0
$\bar{a}b$	1	0
ab	0	0
$a\bar{b}$	1	1

3.

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

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

$BD + AC + A\bar{C}D + BC\bar{D}$

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4. * untuk dua variable yang didefinisikan

$a * b = ab + \bar{a}\bar{b}$

jika dimisalkan

$c = a * b$, apakah pernyataan $a * bc = 1$ adalah benar / salah?

$a * b \cdot a * b$

$(ab + \bar{a}\bar{b})(ab + \bar{a}\bar{b})$

$abab + \bar{a}\bar{b}ab + ab\bar{a}\bar{b} + \bar{a}\bar{b}\bar{a}\bar{b}$

$ab + 0 + \bar{a}\bar{b}(ab + \bar{a}\bar{b})$

$ab + 0 + \bar{a}\bar{b}$

$ab + \bar{a}\bar{b}$

$(a + \bar{a}) \cdot (b + \bar{b})$

$1 \cdot 1$

1 (benar)