Práctica 4

Nombre: Colín Ramiro Joel   No. de lista: 3

1- x+y = y+x

x	y	x+y
0	0	0
0	1	1
1	0	1
1	1	1

=

y	x	y+x
0	0	0
0	1	1
1	0	1
1	1	1

2- x·y = y·x

x	y	x·y
0	0	0
0	1	0
1	0	0
1	1	1

=

y	x	y·x
0	0	0
0	1	0
1	0	0
1	1	1

3- x·(y·z) = (x·y)·z

x	y	z	y·z	x·(y·z)
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	1	0
1	0	0	0	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

=

x	y	z	x·y	(x·y)·z
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	0	0
1	1	0	1	0
1	1	1	1	1

4- x+(y+z) = (x+y)+z

x	y	z	y+z	x+(y+z)
0	0	0	0	0
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	1

=

x	y	z	x+y	(x+y)+z
0	0	0	0	0
0	0	1	0	1
0	1	0	1	1
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

5- x·(y+z) = (x·y)+(x·z)

x	y	z	y+z	x·(y+z)
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	1	0
1	0	0	0	0
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

=

x	y	z	x·y	x·z	(x·y)+(x·z)
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	0	0	0
1	0	1	0	1	1
1	1	0	1	0	1
1	1	1	1	1	1

6- $x + (y \cdot z) = (x+y) \cdot (x+z)$

X	Y	Z	Y·Z	X+(Y·Z)
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	1	1
1	0	0	0	1
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

$=$

X	Y	Z	X+Y	X+Z	(x+y)·(x+z)
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	1	0	0
0	1	1	1	1	1
1	0	0	1	1	1
1	0	1	1	1	1
1	1	0	1	1	1
1	1	1	1	1	1

7- $x \cdot (x+y) = x$

X	Y	X+Y	X·(X+Y)
0	0	0	0
0	1	1	0
1	0	1	1
1	1	1	1

$=$

X
0
0
1
1

8- $(x \cdot y) + (x \cdot \bar{y}) = x$

X	Y	Ȳ	X·Y	X·Ȳ	(x·y) + (x·ȳ)
0	0	1	0	0	0
0	1	0	0	0	0
1	0	1	0	1	1
1	1	0	1	0	1

$=$

X
0
0
1
1

9- $(x+y) \cdot (x+\bar{y}) = x$

X	Y	Ȳ	X+Y	X+Ȳ	(x+y)·(x+ȳ)
0	0	1	0	1	0
0	1	0	1	0	0
1	0	1	1	1	1
1	1	0	1	1	1

$=$

X
0
0
1
1

10- $\overline{x+y} = \bar{x} \cdot \bar{y}$

X	Y	X+Y	$\overline{X+Y}$
0	0	0	1
0	1	1	0
1	0	1	0
1	1	1	0

$=$

X	Y	X̄	Ȳ	X̄·Ȳ
0	0	1	1	1
0	1	1	0	0
1	0	0	1	0
1	1	0	0	0

11- $\overline{x \cdot y} = \bar{x} + \bar{y}$

X	Y	X·Y	$\overline{X·Y}$
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0

$=$

X	Y	X̄	Ȳ	X̄+Ȳ
0	0	1	1	1
0	1	1	0	1
1	0	0	1	1
1	1	0	0	0

12- $x + (\bar{x} \cdot y) = x + y$

x	y	x̄	x̄·y	x+(x̄·y)
0	0	1	0	0
0	1	1	1	1
1	0	0	0	1
1	1	0	0	1

=

x	y	x+y
0	0	0
0	1	1
1	0	1
1	1	1

13- $x \cdot (\bar{x}+y) = x \cdot y$

x	y	x̄	x̄+y	x·(x̄+y)
0	0	1	1	0
0	1	1	1	0
1	0	0	0	0
1	1	0	1	1

=

x	y	x·y
0	0	0
0	1	0
1	0	0
1	1	1

14- $(x \cdot y)+(y \cdot z)+(\bar{x} \cdot z) = (x \cdot y)+(\bar{x} \cdot z)$

x	y	z	x̄	x·y	y·z	x̄·z	(x·y)+(y·z)	(x·y)+(y·z)+(x̄·z)
0	0	0	1	0	0	0	0	0
0	0	1	1	0	0	1	0	1
0	1	0	1	0	0	0	0	0
0	1	1	1	0	1	1	1	1
1	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0
1	1	0	0	1	0	0	1	1
1	1	1	0	1	1	0	1	1

=

x	y	z	x̄	x·y	x̄·z	(x·y)+(x̄·z)
0	0	0	1	0	0	0
0	0	1	1	0	1	1
0	1	0	1	0	0	0
0	1	1	1	0	1	1
1	0	0	0	0	0	0
1	0	1	0	0	0	0
1	1	0	0	1	0	1
1	1	1	0	1	0	1

15- $(x+y) \cdot (y+z) \cdot (\bar{x}) + z = (x+y) \cdot (\bar{x}+z)$

x	y	z	x̄	x+y	y+z	x̄+z	(x+y)·(y+z)	(x+y)·(y+z)·(x̄+z)
0	0	0	1	0	0	1	0	0
0	0	1	1	0	1	1	0	0
0	1	0	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1
1	0	0	0	1	0	0	0	0
1	0	1	0	1	1	1	1	1
1	1	0	0	1	1	0	1	0
1	1	1	0	1	1	1	1	1

=

x	y	z	x̄	x+y	x̄+z	(x+y)·(x̄+z)
0	0	0	1	0	1	0
0	0	1	1	0	1	0
0	1	0	1	1	1	1
0	1	1	1	1	1	1
1	0	0	0	1	0	0
1	0	1	0	1	1	1
1	1	0	0	1	0	0
1	1	1	0	1	1	1