

Portas Lógicas Básicas:

1. Porta lógica NOT (Negação):

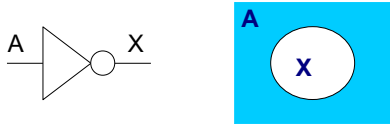


Tabela Verdade:

A	X
0	1
1	0

$$X = \bar{A} \quad \text{ou} \quad X = \text{NOT}(A)$$

2. Porta Lógica OR (OU):

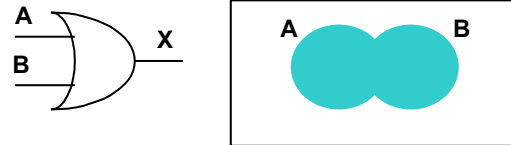


Tabela Verdade:

A	B	X
0	0	0
0	1	1
1	0	1
1	1	1

$$X = A \text{ OR } B \quad \text{ou} \quad X = A + B$$

$$\text{ou} \quad X = A \vee B$$

3. Porta Lógica AND (E):

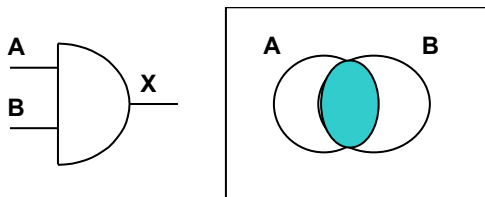


Tabela Verdade:

A	B	X
0	0	0
0	1	0
1	0	0
1	1	1

$$X = A \text{ AND } B \quad \text{ou} \quad X = A \bullet B$$

$$\text{ou} \quad X = A \wedge B$$

4. Porta XOR (OU EXCLUSIVO):

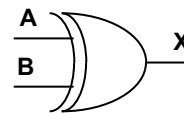


Tabela Verdade:

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

Álgebra Booleana - Propriedades:

Propriedade	Forma AND	Forma OR
Identidade	$1 \bullet A = A$	$0 + A = A$
Elemento nulo	$0 \bullet A = 0$	$1 + A = 1$
Equipotência	$A \bullet A = A$	$A + A = A$
Inverso	$A \bullet \bar{A} = 0$	$A + \bar{A} = 1$
Comutativa	$A B = B A$	$A + B = B + A$
Associativa	$(A B) C = A (B C)$	$(A + B) + C = A + (B + C)$
Distributiva	$A + B C = (A + B) (A + C)$	$A (B + C) = A B + A C$
Absorção	$A (A + B) = A$	$A + A B = A$
De Morgan	$\overline{x \cdot y \cdot z} = \bar{x} + \bar{y} + \bar{z}$	$\overline{x + y + z} = \bar{x} \cdot \bar{y} \cdot \bar{z}$