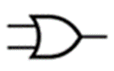
**Comprove que a expressão Equivale à porta XOR**

**Porta Lógica - Logic Gate XOR**

**Porta NOT ou INVERTER (inversor)**

**Porta Lógica - Logic Gate OR ou OU ou +**

**Desafio 7 – Tendo em conta a expressão**

**Desafio 7.1 – Tendo em conta a expressão**

a) Calcular o nº de saídas possíveis.

b) Preencher a tabela de verdade.

c) Desenhar o circuito no logisim.

d) Desenhar o diagrama temporal.

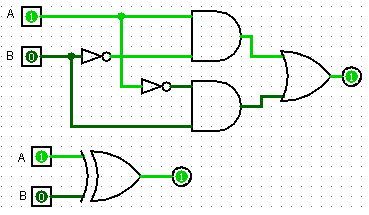
e) Conclusão.

**Resolução**

a) Calcular o nº de saídas possíveis. Resposta 22=\_\_\_\_

b) Preencher as tabelas de verdade

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | 22=4 | Entradas | |  |  |  | | Saída | | **A** | **B** |  |  |  |  | **S** | | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | |  | |  |  |  |  | | --- | --- | --- | --- | | 22=4 | Entradas | | Saída | | **A** | **B** | **S** | | 1 | 0 | 0 | 0 | | 2 | 0 | 1 | 1 | | 3 | 1 | 0 | 1 | | 4 | 1 | 1 | 0 | |



b) Desenhar os circuitos no logisim (Teste os circuitos com entradas iguais).

c) Desenhar os diagramas temporais.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | | A | 0 | 0 | 1 | 1 |  | |  |  |  |  |  |  | | B | 0 | 1 | 0 | 1 |  | |  |  |  |  |  |  | |  |  |  |  |  |  | | S | 0 | 1 | 1 | 0 |  | |  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | | A | 0 | 0 | 1 | 1 |  | |  |  |  |  |  |  | | B | 0 | 1 | 0 | 1 |  | |  |  |  |  |  |  | |  |  |  |  |  |  | | S | 0 | 1 | 1 | 0 |  | |

f) Conclusão.  **é igual a** . Também conhecida como a **porta ou exclusivo**. A saída só é 1 quando as entradas forem diferentes.