**Sesión 4: Juego de dados**

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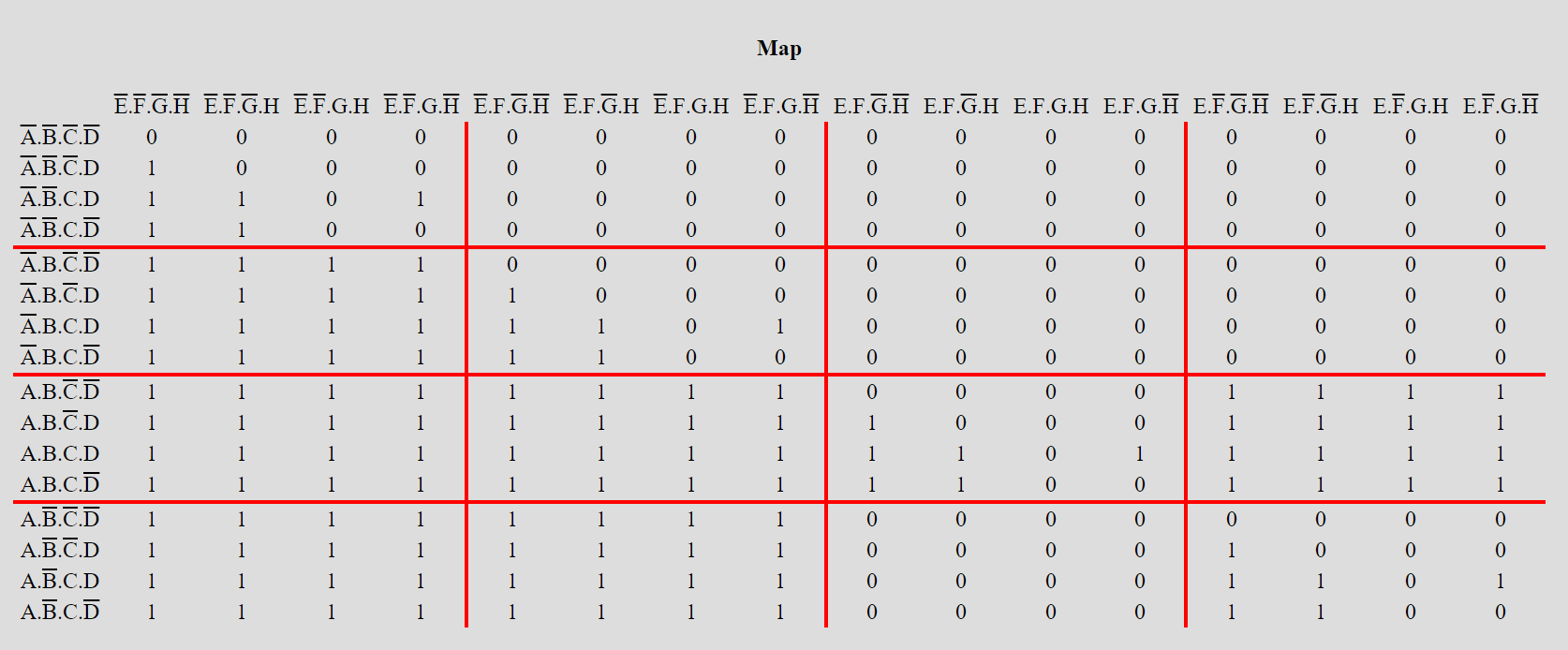
Tabla de verdad del bloque COMPARADOR.

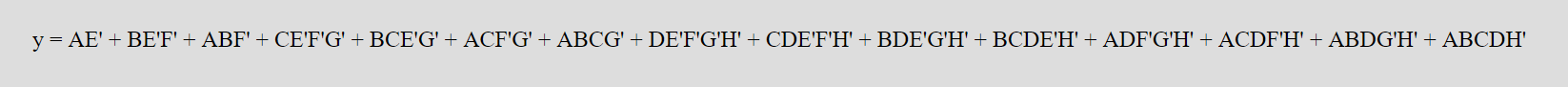
|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Enable** | **X1** | **X2** | **X3** | **X4** | **Y1** | **Y2** | **Y3** | **Y4** | **G1** | **G2** | **Empate** |
| 1 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **0** | 0 | **1** |
| 1 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 0 | 0 | 1 | **0** | 0 | **1** |
| 1 | **0** | **0** | **0** | **1** | 0 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **0** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 0 | 1 | 0 | **0** | 0 | **1** |
| 1 | **0** | **0** | **1** | **0** | 0 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 0 | 1 | 1 | **0** | 0 | **1** |
| 1 | **0** | **0** | **1** | **1** | 0 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **0** | **1** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 1 | 0 | 0 | **0** | 0 | **1** |
| 1 | **0** | **1** | **0** | **0** | 0 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 1 | 0 | 1 | **0** | 0 | **1** |
| 1 | **0** | **1** | **0** | **1** | 0 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **0** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **0** | 0 | 1 | 1 | 0 | **0** | 0 | **1** |
| 1 | **0** | **1** | **1** | **0** | 0 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **0** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
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| 1 | **0** | **1** | **1** | **0** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **0** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
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| 1 | **0** | **1** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **0** | **1** | **1** | **1** | 0 | 1 | 1 | 1 | **0** | 0 | **1** |
| 1 | **0** | **1** | **1** | **1** | 1 | 0 | 0 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **1** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **1** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **1** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
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| 1 | **0** | **1** | **1** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **0** | **1** | **1** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 0 | 0 | 0 | **0** | 0 | **1** |
| 1 | **1** | **0** | **0** | **0** | 1 | 0 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **0** | **1** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
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| 1 | **1** | **0** | **0** | **1** | 1 | 0 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 1 | 0 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **0** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
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| 1 | **1** | **0** | **1** | **0** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 1 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **0** | 1 | 0 | 1 | 0 | **0** | 0 | **1** |
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| 1 | **1** | **0** | **1** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
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| 1 | **1** | **0** | **1** | **1** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
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| 1 | **1** | **0** | **1** | **1** | 1 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **0** | **1** | **1** | 1 | 0 | 1 | 1 | **0** | 0 | **1** |
| 1 | **1** | **0** | **1** | **1** | 1 | 1 | 0 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **1** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **0** | **1** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **1** | **0** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
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| 1 | **1** | **1** | **0** | **0** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 1 | 0 | 0 | **0** | 0 | **1** |
| 1 | **1** | **1** | **0** | **0** | 1 | 1 | 0 | 1 | **0** | 1 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **1** | **0** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 1 | 0 | 1 | **0** | 0 | **1** |
| 1 | **1** | **1** | **0** | **1** | 1 | 1 | 1 | 0 | **0** | 1 | **0** |
| 1 | **1** | **1** | **0** | **1** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **0** | 1 | 1 | 1 | 0 | **0** | 0 | **1** |
| 1 | **1** | **1** | **1** | **0** | 1 | 1 | 1 | 1 | **0** | 1 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 0 | 1 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 0 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 0 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 0 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 0 | 1 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 1 | 0 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 1 | 0 | 1 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 1 | 1 | 0 | **1** | 0 | **0** |
| 1 | **1** | **1** | **1** | **1** | 1 | 1 | 1 | 1 | **0** | 0 | **1** |
| 0 | **0** | **0** | **0** | **0** | 0 | 0 | 0 | 0 | **X** | X | **X** |

Cuando el Enable tenga valor cero, el circuito no calcula un ganador.

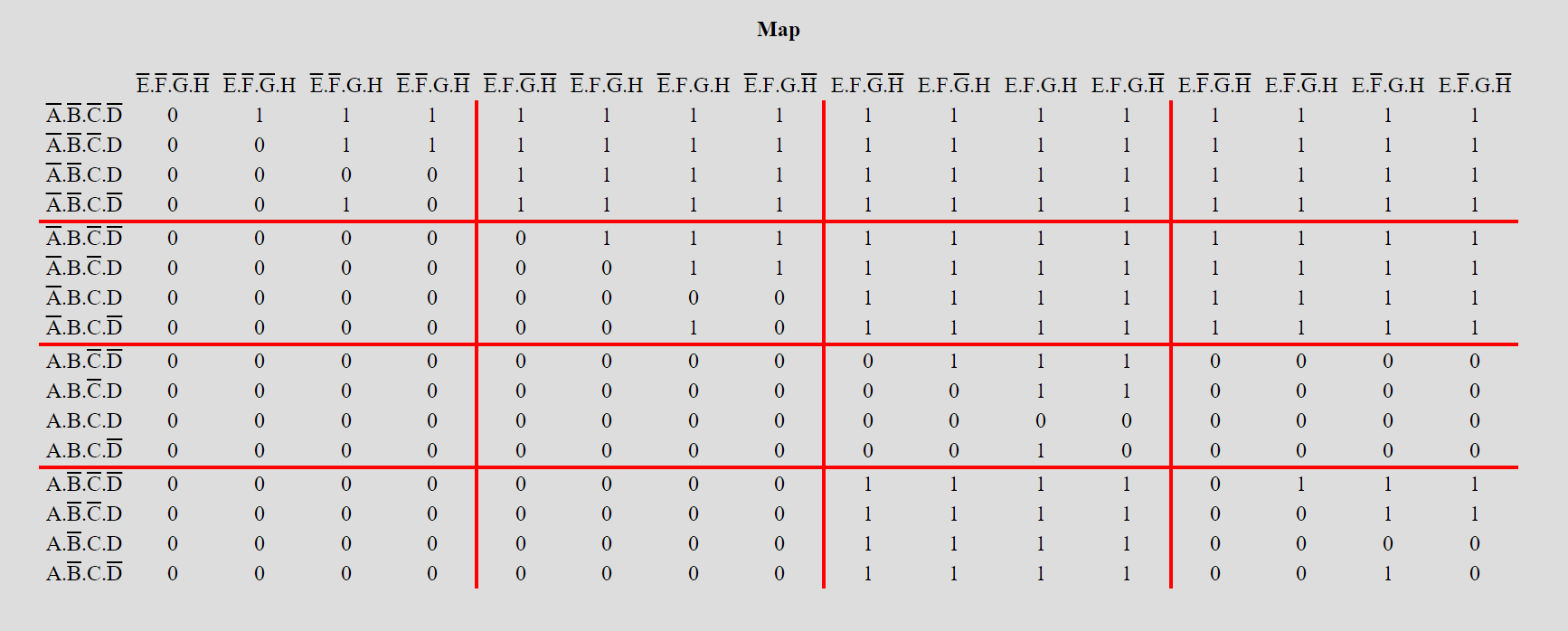
X1=A X2=B X3=C X4=D

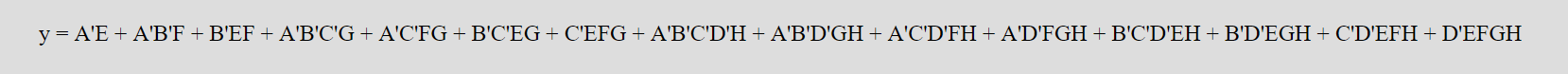
Y1=E Y2=F Y3=G Y4=H

Karnaugh G1: 

Ecuación de mintérminos: (El apóstrofe es negación)

Karnaugh G2:



Ecuación de mintérminos: (El apóstrofe es negación)

Empate: Hemos utilizado una puerta lógica NOR, ya que si no gana ninguno será empate. Si las salidas de G1 y G2 son ambas cero, entonces la salida de Empate será un uno.

Desarrollos para el bloque FSM:

Tabla de estados:

|  |  |  |
| --- | --- | --- |
|  | Q1 | Q0 |
| Reposo | 0 | 0 |
| Juega 1 | 0 | 1 |
| Juega 2 | 1 | 0 |
| Ganador | 1 | 1 |

Tabla de verdad del bloque FSM.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Start** | **Q1** | **Q0** | **Q’1** | **Q’0** | **D1** | **D0** | **Load1** | **Load2** | **Enable** |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

D1 D0

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start\Q1Q0 | 00 | 01 | 11 | 10 |
| 0 | 0 | 0 | 1 | 1 |
| 1 | 0 | 1 | 0 | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start\Q1Q0 | 00 | 01 | 11 | 10 |
| 0 | 0 | 1 | 1 | 0 |
| 1 | 1 | 0 | 0 | 1 |

L1 L2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start\Q1Q0 | 00 | 01 | 11 | 10 |
| 0 | 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 0 | 0 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start\Q1Q0 | 00 | 01 | 11 | 10 |
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 0 | 0 | 1 |

Enable

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Start\Q1Q0 | 00 | 01 | 11 | 10 |
| 0 | 0 | 0 | 1 | 0 |
| 1 | 0 | 0 | 1 | 0 |

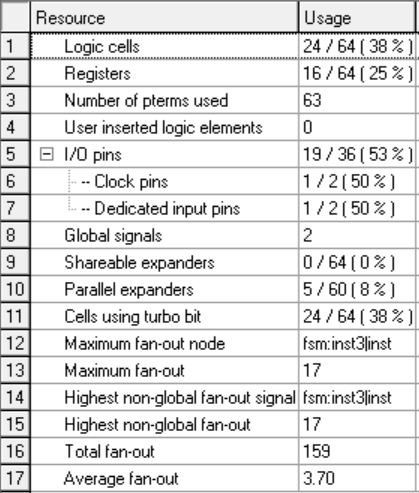
(El apóstrofe es negación)

L1=Q1’Q0 L2=Q1Q0’ Enable=Q1Q0

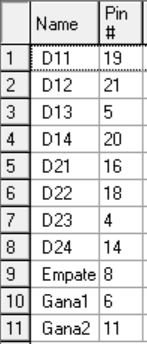
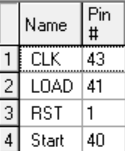
D1=Q1Q0’+Start’Q1+StartQ1’Q0

D0= Start’Q0+ StartQ0’

1.Tamaño del diseño:



2.Entradas y salida, con su número pin:

3. Hemos tomado como posibles valores de los dados los números del 0 al 15, teniendo en cuenta que son 8 entradas y todas sus posibilidades.