

**Challenge**

Logic Circuits

**Challenge 1**

**Diagram

Description automatically generated**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input A** | **Input B** | **Input C** | **Input D** | **Output** |
| 0 | 0 | 0 | 0 | **1** |
| 0 | 0 | 0 | 1 | **0** |
| 0 | 0 | 1 | 0 | **1** |
| 0 | 0 | 1 | 1 | **0** |
| 0 | 1 | 0 | 0 | **1** |
| 0 | 1 | 0 | 1 | **0** |
| 0 | 1 | 1 | 0 | **1** |
| 0 | 1 | 1 | 1 | **1** |
| 1 | 0 | 0 | 0 | **1** |
| 1 | 0 | 0 | 1 | **1** |
| 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** |

**Challenge 2**

**A picture containing text

Description automatically generated**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input A** | **Input B** | **Input C** | **Input D** | **Output** |
| 0 | 0 | 0 | 0 | **0** |
| 0 | 0 | 0 | 1 | **1** |
| 0 | 0 | 1 | 0 | **0** |
| 0 | 0 | 1 | 1 | **0** |
| 0 | 1 | 0 | 0 | **0** |
| 0 | 1 | 0 | 1 | **0** |
| 0 | 1 | 1 | 0 | **0** |
| 0 | 1 | 1 | 1 | **0** |
| 1 | 0 | 0 | 0 | **0** |
| 1 | 0 | 0 | 1 | **0** |
| 1 | 0 | 1 | 0 | **0** |
| 1 | 0 | 1 | 1 | **0** |
| 1 | 1 | 0 | 0 | **0** |
| 1 | 1 | 0 | 1 | **0** |
| 1 | 1 | 1 | 0 | **0** |
| 1 | 1 | 1 | 1 | **0** |

