**Problem 1:**

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | NOT(A) | NOT(B) |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 1 | 0 | 0 |

|  |  |  |
| --- | --- | --- |
| A | B | AND |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

|  |  |  |
| --- | --- | --- |
| A | B | OR |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

|  |  |  |
| --- | --- | --- |
| A | B | NAND |
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

|  |  |  |
| --- | --- | --- |
| A | B | NOR |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

|  |  |  |
| --- | --- | --- |
| A | B | XOR |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

**Problem 2:**

2.1 +5V to power the IC and GND to ground it.

2.2 Bus strips are typically made of conductive material that runs along the length of a breadboard. On the breadboard mentioned above there are three pairs of bus strips, on top, middle and the bottom. The bus strip next to the redline is used for power and the one next to the blueline is used for grounding.

2.3 Bus strips are useful for several reasons, such as: making it easier to troubleshoot the circuit. It also works great with large and complicated circuits. And, the most important thing is we use bus strips to connect our breadboard to power supply.

2.4 Yes

2.5 No

2.6 No

2.7 Yes

2.8 The 3-way switch panel seems like the most appropriate for Boolean logic.

**Problem 3:**