### **Binary Addition Breakdown with 50 Examples**

|  |  |  |
| --- | --- | --- |
| **Binary Addition** | **Result** | **Explanation** |
| 0 + 0 | 0 | No carry, 0 remains 0 |
| 0 + 1 | 1 | No carry, 0 + 1 = 1 |
| 1 + 0 | 1 | No carry, 1 + 0 = 1 |
| 1 + 1 | 10 | 0 with a carry of 1 |
| 10 + 1 | 11 | 0 + 1 = 1, carry 1 |
| 11 + 1 | 100 | 1 + 1 = 10, carry 1 |
| 100 + 1 | 101 | 0 + 1 = 1, carry 1 |
| 101 + 1 | 110 | 1 + 1 = 10, carry 1 |
| 110 + 1 | 111 | 0 + 1 = 1, carry 1 |
| 111 + 1 | 1000 | 1 + 1 = 10, carry 1 |
| 1000 + 1 | 1001 | 0 + 1 = 1, carry 1 |
| 1001 + 1 | 1010 | 1 + 1 = 10, carry 1 |
| 1010 + 1 | 1011 | 0 + 1 = 1, carry 1 |
| 1011 + 1 | 1100 | 1 + 1 = 10, carry 1 |
| 1100 + 1 | 1101 | 0 + 1 = 1, carry 1 |
| 1101 + 1 | 1110 | 1 + 1 = 10, carry 1 |
| 1110 + 1 | 1111 | 0 + 1 = 1, carry 1 |
| 1111 + 1 | 10000 | 1 + 1 = 10, carry 1 |
| 10000 + 1 | 10001 | 0 + 1 = 1, carry 1 |
| 10001 + 1 | 10010 | 1 + 1 = 10, carry 1 |
| 10010 + 1 | 10011 | 0 + 1 = 1, carry 1 |
| 10011 + 1 | 10100 | 1 + 1 = 10, carry 1 |
| 10100 + 1 | 10101 | 0 + 1 = 1, carry 1 |
| 10101 + 1 | 10110 | 1 + 1 = 10, carry 1 |
| 10110 + 1 | 10111 | 0 + 1 = 1, carry 1 |
| 10111 + 1 | 11000 | 1 + 1 = 10, carry 1 |
| 11000 + 1 | 11001 | 0 + 1 = 1, carry 1 |
| 11001 + 1 | 11010 | 1 + 1 = 10, carry 1 |
| 11010 + 1 | 11011 | 0 + 1 = 1, carry 1 |
| 11011 + 1 | 11100 | 1 + 1 = 10, carry 1 |
| 11100 + 1 | 11101 | 0 + 1 = 1, carry 1 |
| 11101 + 1 | 11110 | 1 + 1 = 10, carry 1 |
| 11110 + 1 | 11111 | 0 + 1 = 1, carry 1 |
| 11111 + 1 | 100000 | 1 + 1 = 10, carry 1 |
| 100000 + 1 | 100001 | 0 + 1 = 1, carry 1 |
| 100001 + 1 | 100010 | 1 + 1 = 10, carry 1 |
| 100010 + 1 | 100011 | 0 + 1 = 1, carry 1 |
| 100011 + 1 | 100100 | 1 + 1 = 10, carry 1 |
| 100100 + 1 | 100101 | 0 + 1 = 1, carry 1 |
| 100101 + 1 | 100110 | 1 + 1 = 10, carry 1 |
| 100110 + 1 | 100111 | 0 + 1 = 1, carry 1 |
| 100111 + 1 | 101000 | 1 + 1 = 10, carry 1 |
| 101000 + 1 | 101001 | 0 + 1 = 1, carry 1 |
| 101001 + 1 | 101010 | 1 + 1 = 10, carry 1 |
| 101010 + 1 | 101011 | 0 + 1 = 1, carry 1 |
| 101011 + 1 | 101100 | 1 + 1 = 10, carry 1 |
| 101100 + 1 | 101101 | 0 + 1 = 1, carry 1 |
| 101101 + 1 | 101110 | 1 + 1 = 10, carry 1 |
| 101110 + 1 | 101111 | 0 + 1 = 1, carry 1 |
| 101111 + 1 | 110000 | 1 + 1 = 10, carry 1 |