**Worksheet 3: Binary to decimal conversion**

# Challenge 1: For each of the binary values below, write down the decimal equivalent. Use the grid below to help you.

1. 101
2. 10111
3. 111011
4. 11001001
5. 11101010

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **128** | **64** | **32** | **16** | **8** | **4** | **2** | **1** |  | **Decimal** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | **1** | **1** | **0** | **=** | **6** |
|  |  |  |  |  | 1 | 0 | 1 | = |  |
|  |  |  | 1 | 0 | 1 | 1 | 1 | = |  |
|  |  | 1 | 1 | 1 | 0 | 1 | 1 | = |  |
|  |  |  |  |  |  |  |  | = |  |
|  |  |  |  |  |  |  |  | = |  |

# Challenge 2: For each of the decimal values below, write down the binary equivalent. Use the grid to help you.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **128** | **64** | **32** | **16** | **8** | **4** | **2** | **1** |  | **Decimal** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  | **=** | **14** |
|  |  |  |  |  |  |  |  | = | **51** |
|  |  |  |  |  |  |  |  | = | **129** |
|  |  |  |  |  |  |  |  | = | **174** |
|  |  |  |  |  |  |  |  | = | **255** |

# Challenge 3: What do you think might happen with values above 255?