**Worksheet 1**

**Converting Binary to Decimal**

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Use the following table to help you to convert the Decimal numbers to Binary Numbers:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 210 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 |
| 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |

 Write each binary number as a decimal number:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1- Binary = (10011) 2 Decimal =(1\*16)+(0\*8)+(0\*4)+(1\*2)+(1\*1)=19

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 0 | 1 | 1 |

 | 2- Binary = (10000) 2 Decimal = (1\*16)+(0\*8)+(0\*4)+(0\*2)+(0\*1)=16

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 0 | 0 | 0 |

 |
| 3- Binary = (101011) 2 Decimal =(1\*32)+(0\*16)+(1\*8)+(0\*4)+(1\*2)+(1\*1)=43

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 1 | 0 | 1 | 1 |

 | 4- Binary = (1111) 2 Decimal =(1\*8)+(1\*4)+(1\*2)+(1\*1)= 15

|  |  |  |  |
| --- | --- | --- | --- |
| 8 | 4 | 2 | 1 |
| 1 | 1 | 1 | 1 |

 |
| 5- Binary = (110011) 2 Decimal =(1\*32)+(1\*16)+(0\*8)+(0\*4)+(1\*2)+(1\*1)=51

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 1 | 0 | 0 | 1 | 1 |

 | 6-Binary = (11000) 2 Decimal =(1\*16)+(1\*8)+(0\*4)+(0\*2)+(0\*1)=24

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | 8 | 4 | 2 | 1 |
| 1 | 1 | 0 | 0 | 0 |

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