\*Please see and accept whiteboard work attached to this file:

1. Decimal Integers to 8-bit Binary Integers:
   1. 72 => 0100 1000

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **0** | **1** | **0** | **0** | **1** | **0** | **0** | **0** |

* 1. 173 => 0101 1101

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **0** | **1** | **0** | **1** | **1** | **1** | **0** | **1** |

1. 8-bit Binary Integers to Unsigned Decimal Integers:
   1. 10001110 => 142

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **1** | **0** | **0** | **0** | **1** | **1** | **1** | **0** |

128 + 8 + 4 + 2 = 142

* 1. 01110011 => 115

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| **0** | **1** | **1** | **1** | **0** | **0** | **1** | **1** |

64 +32 + 16 + 2 + 1 = 115

1. 8-bit Binary Integers to Signed Decimal Integers:
   1. 10001110 => -114
   2. 01110011 => 115
2. Binary Digits to Hexadecimal Notation:
   1. 10001110 => 8E
   2. 01110011 => 73
3. Decimal Numbers to Hexadecimal:
   1. 427 => 0x1AB
   2. 841 => 0x349
4. Hexadecimal to Decimal:
   1. 0x5E => 94
   2. 0x1C3 => 451
5. Hexadecimal Numbers in Binary:
   1. 0x1234 => 0001 0010 0011 0100
   2. 0xFBA2 => 1111 1011 1010 0010
6. Two’s Complements of Binary Numbers:
   1. 01111110 => 10000010
   2. 11100110 => 000011010
   3. 10000001 => 01111111
   4. 00000000 => 100000000
   5. 10000000 => 10000000

