**Calculate all numbers as 8-bit number, where the value is flipped   
(positive to negative, etc.):?***Note: Remember, negative signed integers begin with 1. Positives begin with 0.*

1. **78**
2. Binary Conversion Algorithm is utilized on the non-negative value 78:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 78 | 39 | 0 |
| 39 | 19 | 1 |
| 19 | 9 | 1 |
| 9 | 4 | 1 |
| 4 | 2 | 0 |
| 2 | 1 | 0 |
| 1 | 0 | 1 |
| Binary value is: 100 -> 0b01001110 | | |

1. We flip the bits (only when calculating negative signed integers):  
   0b01001110 -> 0b10110001
2. Then we add 1 to the binary:

0b10110001+ 0b00000001 = 0b10110010

1. -78 is represented by the signed binary 0b10110010 (2’s Compliment)
2. **-34**
3. Binary Conversion Algorithm is utilized on the non-negative value 34:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 34 | 17 | 0 |
| 17 | 8 | 1 |
| 8 | 4 | 0 |
| 4 | 2 | 0 |
| 2 | 1 | 0 |
| 1 | 0 | 1 |
| Binary value is: 100 -> 0b00100010 | | |

1. We invert all the bits:

0b00100010-> 0b11011101

1. Then we add 1 to the binary:

0b11011101+ 0b00000001 = 0b11011110

1. -34 is represented by the signed binary 0b11011110 (2’s compliment)
2. **111**
3. Binary Conversion Algorithm is utilized on the non-negative value 111:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 111 | 55 | 1 |
| 55 | 27 | 1 |
| 27 | 13 | 1 |
| 13 | 6 | 1 |
| 6 | 3 | 0 |
| 3 | 1 | 1 |
| 1 | 0 | 1 |
| Binary value is: 0b01101111 | | |

1. We invert the bits:  
   0b01101111 -> 0b10010000 ->
2. Then we add 1 to the binary:

0b10010000 + 0b00000001 = 0b10010001

1. 111 is represented by the signed binary 0b01110000
2. **127**
3. Binary Conversion Algorithm is utilized on the non-negative value 127:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 127 | 63 | 1 |
| 63 | 31 | 1 |
| 31 | 15 | 1 |
| 15 | 7 | 1 |
| 7 | 3 | 1 |
| 3 | 1 | 1 |
| 1 | 0 | 1 |
| Binary value is: 100 -> 0b01111111 | | |

1. Then we add 1 to the binary:

0b01111111+ 0b00000001 = 0b10000000

1. 127 is represented by the signed binary 0b10000000