№1

0: 000000

13: 001101

13 / 2 = 6 (remainder 1)

6 / 2 = 3 (remainder 0)

3 / 2 = 1 (remainder 1)

1 / 2 = 0 (remainder 1)

24: 011000

24 / 2 = 12 (remainder 0)

12 / 2 = 6 (remainder 0)

6 / 2 = 3 (remainder 0)

3 / 2 = 1 (remainder 1)

1 / 2 = 0 (remainder 1)

63: 111111

63 / 2 = 31 (remainder 1)

31 / 2 = 15 (remainder 1)

15 / 2 = 7 (remainder 1)

7 / 2 = 3 (remainder 1)

3 / 2 = 1 (remainder 1)

1 / 2 = 0 (remainder 1)

16: 010000

16 / 2 = 8 (remainder 0)

8 / 2 = 4 (remainder 0)

4 / 2 = 2 (remainder 0)

2 / 2 = 1 (remainder 0)

1 / 2 = 0 (remainder 1)

-2: 111110

2 / 2 = 1 (remainder 0)

1 / 2 = 0 (remainder 1)

000010 → 111101

111101 + 1 = 111110

31: 011111

31 / 2 = 15 (remainder 1)

15 / 2 = 7 (remainder 1)

7 / 2 = 3 (remainder 1)

3 / 2 = 1 (remainder 1)

1 / 2 = 0 (remainder 1)

-32: 100000

32 / 2 = 16 (remainder 0)

16 / 2 = 8 (remainder 0)

8 / 2 = 4 (remainder 0)

4 / 2 = 2 (remainder 0)

2 / 2 = 1 (remainder 0)

1 / 2 = 0 (remainder 1)

100000 → 011111

011111 + 1 = 100000

№2  
unsigned:

two’s complement formats​:

000101

Unsigned: 1×2^2+1×20=5

101011

unsigned: 1×2^5+1×2^3+1×2^1+1×2^0=43

two’s complement formats: −1×2^5+1×2^3+1×2^1+1×2^0=-21

111111

unsigned: 1×2^5+1×2^4+1×2^3+1×2^2+1×2^1+1×2^0=63

two’s complement formats: −1×2^5+1×2^4+1×2^3+1×2^2+1×2^1+1×2^0=−1

100000

unsigned: 1×2^5=32

two’s complement formats: −1×2^5=−32

№ 3

7:

* Binary: 00000111
* Hexadecimal: 07

240:

* Binary: 11110000
* Hexadecimal: F0

171:

* Binary: 10101011
* Hexadecimal: AB

126:

* Binary: 01111110
* Hexadecimal: 7E

№4

0x3C

Binary: 00111100

0x7E

Binary: 01111110

0xFF

Binary: 11111111

0xA5

Binary: 10100101

№ 5   
00111100

Invert bits: 11000011

Add 1: 11000100

01111110

Invert bits: 10000001

Add 1: 10000010

11111111

Invert bits: 00000000

Add 1: 00000001

10100101

Invert bits: 01011010

Add 1: 01011011

№ 7

5-bit

7 in binary: 00111

15 in binary: 01111

-16 in binary: 10000

-5 in binary: 11011

Sign-extend to 8-bit binary

7: 00000111

15: 00001111

-16: 11110000

-5: 11111011

Zero-extend to 8-bit binary

7: 00000111

15: 00001111

-16: 00010000

-5: 00011011

№ 8

7: 0111

9: 1001

0111

+ 1001

------

10000

4: 0100

-5: 1011

0100

+ 1011

------

1111

№6

Big-Endian :

Address 1 0xDE

Address 2 0xAD

Address 3 0xBE

Address 4 0xEF

Little-Endian:

Address 1 0xEF

Address 2 0xBE

Address 3 0xAD

Address 4 0xDE