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Assignment-2

1) Write is complement and 2s complement?

1s complement

The is complement is a exchanging or foggling all the 0's into is and all the is in to's of any number

0 => 1
1 => 0

Binary number 11001001
is complement → 00110110

Convert the any number system into a binary system that is if the number is octal, Decimal Hexadecimal convert into binary number system

Ex: 15 Decimal to Binary

2 | 15 -1
2 | 7 -1
2 | 3 -1
1

$(1111)_2$ is complement = 0000

is complent +1

1 1 0 0
+ 1
1 1 0 1

NOW 2+(-3) =

0 0 1 0 (-3)
1 1 0 1
1 1 1 1 (-1)

2's complement

→ Starting with the equivalent positive number
→ Inverting or Flipping all bits changing every 0 to 1 and every 1 to 0.

→ Adding to the Entire inverted number ignore any over Flow

Ex: A decimal number 3

Binary Representation of 3 is : 0011

is complement of 3 : 1100

2's complement of 3 is = is complent +1

1 1 0 0
+ 1
1 1 0 1

NOW 2+(-3) = 0 0 1 0 (-3)
1 1 0 1
1 1 1 1 (-1)

0 0 1 0 (-3)

1 1 0 1

1 1 1 1 (-1)

Subtract $(1010)_2$ From $(1111)_2$

2's Complement

0 0

1 1 1 1

0 1 1 0+

1 0 1 0 1

Carry

ii) $(11011)_2 - (10011)_2$

1 0 0 1 1

0 1 1 0 0 → is Complement

+1

0 1 1 0 1 → 2's Complement

1 1 1 1

1 1 0 1 1

0 1 0 0 1+

0 1 0 0 0 C↑

Carry => 0 1 0 0 0