Two's Complement

> Tags: bit, Two's Complement,

- Subtraction is done using a concept of **radix complement** (two's complement binary)
- A - B = A + (-B)
- The **two's complement** of an N-bit number is defined as its complement with respect to 2^N ; the sum of a number and its two's complement is 2^N
- ***Example:***
  -For the three-bit number 010, the two's complement is 110, because 010+110 = 8 which is equal to 2^3. The two's complement is calculated by **inverting the digits and adding one**

Question:

0011 1011 **and** 0010 0110 in binary
Let's find two's complement for subtrahend:
Step 1:
take the second number , 0010 0110, invert
Step 2:
1101 1001, add 1
Step 3:
1101 1010, sum with the first number
Step 4:
1101 1010

0011 1011

~~1~~0001 0101 = **21**