HW 1

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Questions

- 1. TTL logic gate의 출력 신호를 CMOS logic gate로 연결하면 어떤 문제가 발생할 수 있나? (단 모두 +5V 전원을 사용한다고 가정한다.)

- 2. CMOS logic gate의 출력 신호를 TTL logic gate로 연결하면 어떤 문제가 발생할 수 있나? (단 모두 +5V 전원을 사용한다고 가정한다.)

Number System

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- 3. Convert the following number from decimal to 8-bit binary:

   234

- 4. Convert the following number from unsigned binary to decimal

   0101 1010

- 5. Convert the following number from binary to hexadeciaml

   1011 1001

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- 6. Determine the decimal number for the following 8-bit binary number represented in the following notations.

  1001 0010
  - (a) signed magnitude
  - (b) two's complement number
  - (c) one's complement number

- 7. In the 6-bit binary system with two's complement, compute the following addition. (Also indicate the result as a decimal number.)

  -17 -20

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8. The following negative 2'scomplement number can be expressed as a decimal number as follows. Prove it.

- $a_{n-1}a_{n-2}\cdots a_1 a_0$
- $N = (-1)\cdot 2^{n-1} + a_{n-2}\cdot 2^{n-2} + \cdots + a_1 \cdot 2^1 + a_0 \cdot 2^0$

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