Thursday Reading Assessment: Chapter 2-1 through 2-7

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January 25, 2024

1 Binary and Other Number Systems

1. What is the *weight* of the digit 6 in each of the following numbers? (a) 1386 (b) 54,692 (c) 671,920

2. Convert each number to scientific notation: (a) 1400 (b) 0.000071 (c) 130,000,000 (d) 1/3

3. What is the largest number you could represent with three *decimal* digits?

4. What is the largest number you could represent with three *binary* digits?

5. Decode the following into decimal: (a) 1111 (b) 11110000 (c) 1111 0000 0000

2 Binary Addition and Signed Numbers

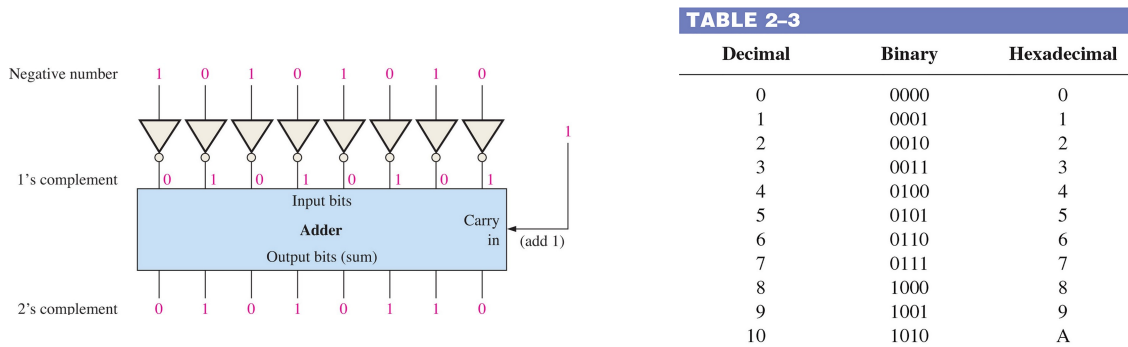| TABLE 2–3		
Decimal	**Binary**	**Hexadecimal**
0	0000	0
1	0001	1
2	0010	2
3	0011	3
4	0100	4
5	0101	5
6	0110	6
7	0111	7
8	1000	8
9	1001	9
10	1010	A

Figure 1: (Top left) a circuit used in binary conversion. (Top right) Decimal, binary, and hexadecimal digits. (Bottom left) A procedure for hexadecimal conversion.

1. What is the purpose of the circuit in Fig. 1 (left)? *Hint: try adding the input to the output.*

2. Examining Fig. 1 (top left), what is 256 in binary and hexadecimal?

3. What is -127 in binary and hexadecimal?