Assignment 2 – Number Systems

10^7	10^6	10^5	10^4	10^3	10^2	10^1	10^0
10000000	1000000	100000	10000	1000	100	10	1
0 – 9	0 – 9	0 – 9	0 – 9	0 – 9	0 – 9	0 – 9	0 – 9

16^7	16^6	16^5	16^4	16^3	16^2	16^1	16^0
268435456	16777216	1048576	65536	4096	256	16	1
0 – F	0 – F	0 – F	0 – F	0 – F	0 – F	0 – F	0 – F

2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
2048	1024	512	256	128	64	32	16	8	4	2	1
0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1	0 – 1

decimal	hexadecimal	binary
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

1. Convert the following numbers from base 10 to base 2:
    a. 32
    b. 47
    c. 255
    d. 2863
2. Convert the following numbers from base 2 to base 10:

   a. 1101 1001
   b. 0010 1011
   c. 1111 1111
   d. 0000 0100
3. Convert the following numbers from base 2 to base 16:
   a. 1101 1001
   b. 0010 1011
   c. 1111 1111
   d. 0000 0100
4. Explain the similarities of base 2, base 10, and base 16 digits.

5. Additionally complete any programming not completed in class.