

## CPFE

Lab #1

Decimal	Binary	Octal	hex
1	1	1	1
10	1010	12	A
42	101010	52	2A
255	1111111	377	FF
15	1111	17	F
223	1101111	337	DF
129	10000001	201	81
4	0100	4	04
147	10010011	223	93
63	111111	77	3F

$$10 = 2^3 + 2^1 = 1 + 2 = A$$

$$42 = 2^5 + 2^3 + 2^1$$

$$42 = 5 \cdot 8^1 + 2 \cdot 8^0$$

$$42 = 2 \cdot 16^1 + 10 \cdot 16^0$$

$$255_{10} = 7$$

$$\boxed{1111111} \rightarrow 377 \quad \boxed{1111111} \rightarrow FF$$

$$\boxed{1101111} \rightarrow 337$$

$$DF = 13 \cdot 16^1 + 15 \cdot 16^0 =$$

Binary						Octal					
0	0	0	0	0	0	0	0	0	0	0	0
Decimal	64	32	16	8	4	2	1	$8^5$	$8^4$	$512$	$64$
	$2^6$	$2^5$	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$				

$$\boxed{10000001} \rightarrow 201 \rightarrow 8 \cdot 16^1 + 1$$

$$04 \rightarrow 0100 \rightarrow$$

$$\boxed{10010011} \rightarrow 93 \rightarrow 223 \rightarrow 9 \cdot 16 + 3$$

$$\boxed{0011111} \rightarrow 3F$$

$$\boxed{111111} = 77$$

$$\boxed{111111} \rightarrow 2^5 + 2^4 + 2^3 + 2^2 + 2^1 + 2^0 = 63$$

$N_{10}$	$N_8$	$3 \times N_2$	$N_{10}$	$N_{16}$	$4 \times N_2$
0	0	000	0	0	0000
1	1	001	1	1	0001
2	2	010	2	2	0010
3	3	011	3	3	0011
4	4	100	4	4	0100
5	5	101	5	5	0101
6	6	110	6	6	0110
7	7	111	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