Number Systems
Base 10, Base 16, Base 2

Base 10 – 0-9 (10) digits before moving to the next column

10^2	10^1	10^0	Base 10 number
100	10	1	
5 (100's)	2(10's)	3 (1's)	523
5*100= 500	2*10=20	3*1=3	500+20+3=523

Base 16 – Hexadecimal – 0-9, A, B, C, D, E, F digits (16) before moving to the next positional column

16^2	16^1	16^0	Base 16 number
256	16	1	
2 (256's)	3(16's)	5 (1's)	235
2*256= 512	3*16=48	5*1=3	512+48+5=565 (in base 10)

Base 2 – Binary (2) 0,1 digits before moving to the next column

2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	Base 2 number
128	64	32	16	8	4	2	1	
1	0	1	1	0	1	1	1	10110111
								128+32+16+4+2+1=183

Converting Base 10 to Base 16

1.) Convert the Base 10 number to binary

2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	Base 10 Number
128	64	32	16	8	4	2	1	
1	0	0	1	0	0	1	1	147
147 – 128 = 19 19 – 16 = 3 -2=1								10010011

2.) Split the binary into 2 groups of 4 bits and convert to Hex

2^3	2^2	2^1	2^0	Base 10 Number
8	4	2	1	
1	0	0	1	9
Base 16 Num				9

2^3	2^2	2^1	2^0	Base 10 Number
8	4	2	1	
0	0	1	1	3
Base 16 Num				3

3.) The answer is 147_b = 93_h