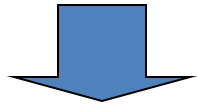# HEXADECIMAL

The hexadecimal number system

is also known as **base 16**.

The first 16 numbers are:

0, 1, 2, 3, 4, 5, 6 , 7, 8, 9 ,10…15

Binary:

11111001110

111 1100 1110

7   12   14 <== *Decimal*

Hexadecimal: 7CE   = $7 \times 16^2 + 12 \times 16^1$
$+ 14 \times 16^0 = 1998$

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

Cont…

- Example of a hexadecimal number and the values of the positions:

$$\underline{3} \quad \underline{C} \quad \underline{8} \quad \underline{B} \quad \underline{0} \quad \underline{5} \quad \underline{1}$$

$16^6 \quad 16^5 \quad 16^4 \quad 16^3 \quad 16^2 \quad 16^1 \quad 16^0$

Decimal to Hexadecimal Conversion

- Example :
    - $(150.65)_{10} = (...?.....)_{16}$

Hexadecimal to octal Conversion

- Example
- $(A0B5)_{16}$ = $(.....?.....)_8$

Hexadecimal to Binary Conversion

- Example
- $(A0B5)_{16}$ = (…..?…..)$_2$