

1000's 100's 100's 10's 1's
 $(469)_{10}$
 10^3 10^2 10^1 10^0

$$\begin{array}{r} 19 \\ + 1 \\ \hline 10 \end{array}$$

0
1
2
3
4
5
6
7
8
9

10
11

$$\begin{matrix} 25^2 & 5^1 & 1^0 \\ (2 & 4 & 3) & 5 \end{matrix}$$

$$\begin{array}{r} 2 \times 25 = 50 \\ 4 \times 5 = 20 \\ 3 \times 1 = 3 \\ \hline (73)_{10} \end{array}$$

$$\begin{array}{r} 4 \\ + 1 \\ \hline 10 \end{array}$$

BASE 5

0
1
2
3
4
(10)₅

$$\begin{array}{cccc}
 2^8 & 2^7 & 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 \\
 256 & 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 \\
 (1 & 0 & 1 & 1 & 0 & 1 & 1 & 1) & 2
 \end{array}$$

$$\begin{array}{r}
 1 \\
 + 1 \\
 \hline
 10 \\
 0
 \end{array}$$

1	x	128	=	1	2	8
0	x	64	=		0	
1	x	32	=		3	2
1	x	16	=		1	6
0	x	8	=		0	
1	x	4	=		4	
1	x	2	=		2	
1	x	1	=		1	
					<hr/>	
					(183) ₁₀	

$$(0000 \ 0010)_2$$

$$(211)_{10}$$

4 bits = NIBBLE
8 bits = BYTE

$$\begin{array}{r} 211 \\ -128 \\ \hline 83 \\ -64 \\ \hline 19 \\ -16 \\ \hline 3 \\ -2 \\ \hline 1 \\ -1 \\ \hline 0 \end{array}$$

$2^8=256$	$2^7=128$	$2^6=64$	$2^5=32$	$2^4=16$	$2^3=8$	$2^2=4$	$2^1=2$	$2^0=1$
0	1	1	0	1	0	0	1	1

$$(11010011)_2 = (211)_{10}$$

(NERDCALC)

0	0 0 0 0	0
	+ 1	
1	0 0 0 1	1
	+ 1	
2	0 0 1 0	2
	+ 1	
3	0 0 1 1	3
	+ 1	
4	0 1 0 0	4
	+ 1	
5	0 1 0 1	5
	+ 1	
6	0 1 1 0	6
	+ 1	
7	0 1 1 1	7

	+ 0 1 1 1	
8	1 0 0 0	8
	+ 1	
9	1 0 0 1	9
	+ 1	
10	1 0 1 0	A
	+ 1	
11	1 0 1 1	B
	+ 1	
12	1 1 0 0	C
	+ 1	
13	1 1 0 1	D
	+ 1	
14	1 1 1 0	E
	+ 1	
15	1 1 1 1	F

+ 0	
0	0
+ 0	
1	1
+ 1	
10	10

0 0000

1 0001

2 0010

3 0011

4 0100

5 0101

6 0110

7 0111

8 1000

9 1001

A 1010

B 1011

C 1100

D 1101

E 1110

F 1111

ABLE

BAKER

CHARLIE

DOG

EASY

FOX

HEXADECIMAL

$$16^3 \quad 16^2 \quad \begin{pmatrix} 16^2 & 15 \\ 7 & F \end{pmatrix} \quad 16^1 \quad 16^0 \quad 16$$

$$\begin{array}{r} 16 \times 7 = 112 \\ 15 \times 1 = 15 \\ \hline (127)_{10} \end{array}$$

$$\begin{array}{r} 2 \\ 64 \\ 32 \\ 16 \\ 8 \\ 4 \\ 2 \\ 1 \\ \hline (127)_{10} \end{array}$$

$$(0 \quad \overset{64}{1} \overset{32}{1} \overset{16}{1} \quad \overset{8}{1} \overset{4}{1} \overset{2}{1} \overset{1}{1})_2$$

3C 2E 7B (3D)

0011 1100 0010 1110 0111 1011 0011 1101