

$$\left(\begin{array}{ccc} 100\text{'s} & 10\text{'s} & 1\text{'s} \\ 4 & 9 & 5 \\ 10^2 & 10^1 & 10^0 \end{array} \right)_{10}$$

$$\begin{array}{r} 1 \\ 9 \\ + 1 \\ \hline 10 \end{array}$$

0
1
2
3
4
5
6
7
8
9

$$25 \times 4 = 100$$

$$5 \times 3 = 15$$

$$2 \times 1 = 2$$

$$\underline{\quad\quad\quad}$$
$$(117)_{10}$$

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

BASE 5

0
1
2
3
4

$$(571)_{10} \rightarrow (4241)_5$$

	625	125	25	5	1
	5 ⁴	5 ³	5 ²	5 ¹	5 ⁰
	0	4	2	4	1

$$\begin{array}{r}
 571 \\
 - 500 \\
 \hline
 71 \\
 50 \\
 \hline
 21 \\
 - 20 \\
 \hline
 1
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{cccc}
 2 & & & \\
 128 & & & \\
 16 & & & \\
 8 & & & \\
 4 & & & \\
 \hline
 (157)_{10}
 \end{array}
 &
 \begin{array}{cccc}
 128 & 64 & 32 & 16 \\
 2^7 & 2^6 & 2^5 & 2^4 \\
 (1001)
 \end{array}
 &
 \begin{array}{cccc}
 8 & 4 & 2 & 1 \\
 2^3 & 2^2 & 2^1 & 2^0 \\
 (1101)
 \end{array}
 &
 \begin{array}{c}
 2 \\
 \text{---} \\
 1
 \end{array}
 \end{array}$$

$$(233)_{10} \rightarrow \underbrace{(1110 \ 1001)}_{\text{BYTE}}_2$$

NIBBLE

128 2 ⁷	64 2 ⁶	32 2 ⁵	16 2 ⁴	8 2 ³	4 2 ²	2 2 ¹	1 2 ⁰
1	1	1	0	1	0	0	1

$$\begin{array}{r}
 233 \\
 \underline{128} \\
 105 \\
 \underline{64} \\
 41 \\
 \underline{32} \\
 9 \\
 \underline{8} \\
 1
 \end{array}$$

$$\begin{array}{r}
 0000 \\
 + 0001 \\
 \hline
 0001 \\
 + 0001 \\
 \hline
 0010 \\
 + 0001 \\
 \hline
 0011 \\
 + 0001 \\
 \hline
 0100 \\
 + 0001 \\
 \hline
 0101 \\
 + 0001 \\
 \hline
 0110 \\
 + 0001 \\
 \hline
 0111
 \end{array}
 \quad
 \begin{array}{l}
 0 \\
 1 \\
 2 \\
 3 \\
 4 \\
 5 \\
 6 \\
 7
 \end{array}$$

$$\begin{array}{r}
 0111 \\
 + 0001 \\
 \hline
 1000 \\
 + 0001 \\
 \hline
 1001 \\
 + 0001 \\
 \hline
 1010 \\
 + 0001 \\
 \hline
 1011 \\
 + 0001 \\
 \hline
 1100 \\
 + 0001 \\
 \hline
 1101 \\
 + 0001 \\
 \hline
 1110 \\
 + 0001 \\
 \hline
 1111
 \end{array}
 \quad
 \begin{array}{l}
 8 \\
 9 \\
 10 \\
 11 \\
 12 \\
 13 \\
 14 \\
 15
 \end{array}$$

$0 + 0 = 0$
 $0 + 1 = 1$
 $1 + 0 = 1$
 $1 + 1 = 0$
 WITH
 CARRY
 OF
 1

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	Able
1011	11	Baker
1100	12	Charlie
1101	13	Dog
1110	14	Easy
1111	15	Fox

1110	1001
(E	9)
	16

$$\left(\overset{16^1}{D} \overset{16^0}{E} \right)_{16} \rightarrow (222)_{10}$$

HEXADECIMAL

$$E \times 1 = 14 \times 1 = 14$$

$$D \times 16 = 13 \times 16 = 208$$

$$(222)_{10}$$

$$\begin{array}{r} 13 \\ \times 16 \\ \hline 78 \\ 13 \\ \hline 208 \end{array}$$

$$\begin{array}{r} 13 \\ 128 \\ + \\ 64 \\ + \\ 16 \\ + \\ 8 \\ + \\ 4 \\ + \\ 2 \\ \hline (222)_{10} \end{array}$$

$$(11011110)_2$$