4096 256 16 1

$2BAD|_{16} = ?|_{10} = 11181|_{10}$

D × 1 = 13 × 1 = 13

A × 16 = 10 × 16 = 160

B × 256 = 11 × 256 = 2816

2 × 4096 = 8192

11181

$\frac{9}{5}$

$64206|_{10} = ?|_{16} = FACE|_{16}$

~~15101214~~

BASE CONVERTING TO

16 | 64206

16 | 4012 — R 14 (E)

16 | 250 — R 12 (C)

16 | 15 — R 10 (A)

16 | 0 — R 15 (F)

0 — R 0

$$49\ 7\ 1$$
$$|123|_7 = ?|_9$$

$$45$$
$$73$$
$$62$$
$$66$$

$$3\times 1 \quad 3$$
$$2\times 7 \quad 14$$
$$1\times 49 \quad 49$$
$$66$$

$$9\overline{)66}$$
$$9\overline{)7} \ R3$$
$$0 \ R7 \uparrow$$

$$73|_9$$

$$123|_7 = 66|_{10}$$

10 Dec	2 Binary	8 Octal	16 Hex
0	0000	0	0
1	0001	1	1
2	0010	2	2
3	0011	3	3
4	0100	4	4
5	0101	5	5
6	0110	6	6
7	0111	7	7
8	1000		8
9	1001		9
10	1010		A
11	1011		B
12	1100		C
13	1101		D
14	1110		E
15	1111		F

1100 1001

C 9

Convert $FACE|_{16}$ to base 2

F A C E

1111 1010 1100 1110

9 E

10 Dec	2 Binary	8 Octal	16 Hex
0	0000	0	0
1	0001	1	1
2	0010	2	2
3	0011	3	3
4	0100	4	4
5	0101	5	5
6	0110	6	6
7	0111	7	7
8	1000		8
9	1001		9
10	1010		A
11	1011		B
12	1100		C
13	1101		D
14	1110		E
15	1111		F

$2743|_8 = ?|_2$

010 111 100 011

$10110111011110001|_2 = ?|_8$

5 5 6 7 0 1

$10110111011110001|_2$

1 3 3 5 6 1 $|_8$

10 Dec	2 Binary	8 Octal	16 Hex
0	0000	0	0
1	0001	1	1
2	0010	2	2
3	0011	3	3
4	0100	4	4
5	0101	5	5
6	0110	6	6
7	0111	7	7
8	1000		8
9	1001		9
10	1010		A
11	1011		B
12	1100		C
13	1101		D
14	1110		E
15	1111		F

$ALICE|_{16} = ?|_{8}$

120716

$1010\ 0001\ 1100\ 1110$

$1\ 2\ 0\ 7\ 1\ 6$

Counting in other bases

Count in base 4

0, 1, 2, 3, 10, 11, 12, 13,

20, 21, 22, 23, 30, 31, 32, 33,

100, 101 -

Bit - BInary DigiT (0 or 1)

8 bits - Byte

4 bits - Nibble

word/double - machine dependant

PC word = 64 bits

ATMega boards word: 8 bits