

Base-4 (0, 1, 2, 3)

00 \rightarrow 0

01 \rightarrow 1

10 \rightarrow 2

11 \rightarrow 3

Base-8 (0, ..., 7)

000 \rightarrow 0

001 \rightarrow 1

010 \rightarrow 2

011 \rightarrow 3

100 \rightarrow 4

101 \rightarrow 5

110 \rightarrow 6

111 \rightarrow 7

If you need to write

1 \rightarrow in Octal, 001

Base-16 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9
A B C D E F)

0000 \rightarrow 0

0001 \rightarrow 1

0010 \rightarrow 2

0011 \rightarrow 3

0100 \rightarrow 4

0101 \rightarrow 5

0110 \rightarrow 6

0111 \rightarrow 7

1000 \rightarrow 8

1001 \rightarrow 9

A(10) \rightarrow 1010

B \rightarrow 1011

C \rightarrow 1100

D \rightarrow 1101

E \rightarrow 1110

F \rightarrow 1111

$$1) (12332.34)_4 \rightarrow ()_2$$

$$\left(\frac{01}{1} \frac{10}{2} \frac{11}{3} \frac{11}{3} \frac{10}{2} . \frac{11}{3} \frac{10}{2} \right)_2$$

$$2) (726.105)_8 \rightarrow ()_2$$

3 bits for each digit.

$$\left(\frac{111}{7} \frac{010}{2} \frac{110}{6} . \frac{001}{1} \frac{000}{0} \frac{101}{5} \right)$$

$$3) (7AD.C2)_{16} \rightarrow ()_2$$

4 bits for each digit.

$$\left(\frac{0111}{7} \frac{1010}{A(10)} \frac{1101}{D(13)} . \frac{1100}{C} \frac{0010}{2} \right)$$

①

$$(11110101101.10011)_2 \rightarrow ()_4$$

↓

$$\begin{array}{c} \text{extra} \swarrow \quad \overbrace{011110101101.100110}^{\leftarrow \quad \rightarrow} \searrow \text{extra} \\ \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \\ (1\ 3\ 2\ 2\ 3\ 1\ .\ 2\ 1\ 2)_4 \end{array}$$

$$2) (11110101101.10011)_2 \rightarrow ()_8$$

$$\begin{array}{c} \text{extra} \swarrow \quad \overbrace{011110101101.100110}^{\leftarrow \quad \rightarrow} \searrow \\ \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \\ (3\ 6\ 5\ 5\ .\ 4\ 6)_8 \end{array}$$

$$3) (11110101101.10011)_2 \rightarrow ()_{16}$$

$$\begin{array}{c} \overbrace{011110101101.10011000}^{\leftarrow \quad \rightarrow} \\ (7\ A\ D\ .\ 9\ 8)_{16} \end{array}$$

$$\stackrel{Q}{=} (3121 \cdot 12)_4 \rightarrow (\quad)_8$$

\diagdown
 $(\quad)_2$

\diagup
 $(\quad)_2$

$(3121.12)_4 \rightarrow \text{To binary}$

$(1101\ 1001.0110)_2$

$(011011001.011000)_2 \rightarrow \text{extra}$
 $(331.3)_8$

$$(7567.23)_8 \rightarrow (\quad)_4$$