

සවිදුලය සංඛ්‍යා (Hexadecimal)

HEX → Bin

Hex	Bin
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

01) 2

A

C₁₆

001010101100₂

02) 3

B

E 9₁₆

0011101011001₂

03) 4 3 C D₁₆

0100001111001101₂

04) 5 0 4 C₁₆

0101000001001100₂

05) 9 0 F E₁₆

1001000011111110₂

Bin → Hex

01) 010111100111₂
5 E 7₁₆

02) 100010011110₂
8 9 E₁₆

03) 0001000011000111₂
1 0 C F₁₆

04) 111011111011₂
b f x B₁₆

Oct → Hex

01) 010100110₂
2 4 b₈
A b₁₆

02) 011010111001₂
3 2 7 1₈
b B x 9₁₆

03) 100111000101₂
4 7 0 5₈
9 C 5₁₆

04) 111110000001₂
7 6 0 1₈
F 8 1₁₆

05) $\begin{array}{cccc} 2 & 4 & 7 & 3_8 \\ \hline 0101 & 0011 & 1011 & \\ \hline & 5 & 3 & B_{16} \end{array}$

Hex \rightarrow Oct

01) $\begin{array}{ccc} 2 & B & D_{16} \\ \hline 001010 & 111101 & \\ \hline & 1 & 2 & 7 & 5_8 \end{array}$

02) $\begin{array}{ccc} F & C & 0_{16} \\ \hline 11111100 & 0000 & \\ \hline & 7 & 7 & 0 & 0_8 \end{array}$

03) $\begin{array}{ccc} F & 9 & 7_{16} \\ \hline 11111001 & 0111 & \\ \hline & 7 & 1 & b & 2 & 7_8 \end{array}$

04) $\begin{array}{ccc} C & D & b_{16} \\ \hline 11101101 & 0110 & \\ \hline & 6 & 3 & 2 & b_8 \end{array}$

Dec \rightarrow Hex

$16 \times 1 = 16$	$16 \times 9 = 144$
$16 \times 2 = 32$	$16 \times 10 = 160$
$16 \times 3 = 48$	$16 \times 11 = 176$
$16 \times 4 = 64$	$16 \times 12 = 192$
$16 \times 5 = 80$	$16 \times 13 = 208$
$16 \times 6 = 96$	$16 \times 14 = 224$
$16 \times 7 = 112$	$16 \times 15 = 240$
$16 \times 8 = 128$	$16 \times 16 = 256$

Type 01

01) $1b \overline{45}$
 $2 - D$
 $2D_{16}$

02) $1b \overline{79}$
 $4 - F$
 $4F_{16}$

03) $1b \overline{179}$
 $11 - 3$
 $B3_{16}$

04) $1b \overline{230}$
 $14 - b$
 Eb_{16}

05) $1b \overline{248}$
 $15 - 8$
 $F8_{16}$

Type 02

01) $11 \overline{0010}_2$
 $3 \quad 2_{16}$

02) $01 \overline{000101}_2$
 $4 \quad 0 \quad 5_{16}$

03) $0101 \overline{0101}_2$
 $5 \quad 5_{16}$

04) $0110 \overline{0110}_2$
 $b \quad b_{16}$

05) $1001 \overline{0001}_2$
 $9 \quad 1_{16}$

Hex → Dec

type 01

01) $2 \quad C_{16}$
 $(1b) \quad (1)$
 $1b \times 2 + 1 \times 12$
 $32 + 12$
 44

02) $3 \quad B \quad C_{16}$
 $(25b) (1b) (1)$
 $25b \times 3 + 1b \times 4 + 1 \times 12$
 844

03) $4 \text{ C}_{16} \text{ F}_{16}$
 $(25b) (1b) (1)$
 $25b \times 4 + 1b \times 12 + 1 \times 15$

1231

Type 02

01) 4 C_{16}
 $\begin{array}{l} \times 16 \\ \hline 64 \\ 7b \end{array}$

7b

02) 8 E_{16}
 $\begin{array}{l} \times 16 \\ \hline 128 \\ 142 \end{array}$

142

03) 1 D
 $\begin{array}{l} \times 16 \\ \hline 16 \\ 20 \end{array}$

333

Type 03

01) 4 C_{16}

01001100_2

$\begin{array}{cccc} 2 & 4 & 8 & 16 \\ & & 9 & 19 \end{array}$

ආග කංචන, පරිවර්තනය

Dec \rightarrow Bin

01) $0.2 \times 2 = 0.4$

$0.4 \times 2 = 0.8$

$0.8 \times 2 = 1.6$

$0.6 \times 2 = 1.2$

$0.2 \times 2 = 0.4$

$0.4 \times 2 = 0.8$

$0.8 \times 2 = 1.6$

$0.2 = 0.0011001$

02) 0,3

$$0,3 \times 2 = 0,6$$

$$0,6 \times 2 = 1,2$$

$$0,2 \times 2 = 0,4$$

$$0,4 \times 2 = 0,8$$

$$0,8 \times 2 = 1,6$$

04) 0,25

$$0,25 \times 2 = 0,5$$

$$0,5 \times 2 = 1,0$$

$$0,25 = 0,01_2$$

05) 0,5

$$0,5 \times 2 = 1,0$$

$$0,5 = 0,1_2$$

06) $0,75 \times 2 = 1,5$

07) 35,7

$$35 + 0,7$$

$$= 100011 + 0,1011$$

$$= 100011,1011_2$$

$$0,7 \times 2 = 1,4$$

$$0,4 \times 2 = 0,8$$

$$0,8 \times 2 = 1,6$$

$$0,6 \times 2 = 1,2$$

$$0,7 = 0,1011_2$$

Bin \rightarrow Dec

01) 0,1101

$$2^{-1} 2^{-2} 2^{-3} 2^{-4}$$

$$\left(\frac{1}{2}\right) \left(\frac{1}{4}\right) \left(\frac{0}{8}\right) \left(\frac{1}{16}\right)$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{16}$$

$$\frac{8 + 4 + 1}{16}$$

$$\frac{13}{16}$$

$$2^{-2} = \frac{1}{2^2}$$

$$2^{-3} = \frac{1}{2^3}$$

$$2^{-4} = \frac{1}{16}$$

$$2^{-5} = \frac{1}{32}$$

02) 0.10101_2

$$\frac{1}{2} \frac{1}{4} \frac{1}{8} \frac{1}{16} \frac{1}{32}$$

$$\frac{1}{2} + \frac{1}{8} + \frac{1}{32}$$

$$\frac{16 + 4 + 1}{32} =$$

$$\frac{21}{32}$$

03) 0.11001_2

$$\frac{1}{2} \frac{1}{4} \frac{1}{8} \frac{1}{16} \frac{1}{32}$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{32}$$

$$\frac{16 + 8 + 1}{32}$$

$$\frac{25}{32}$$

04) 0.111101_2

$$\frac{1}{2} \frac{1}{4} \frac{1}{8} \frac{1}{16} \frac{1}{32} \frac{1}{64}$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{64}$$

$$\frac{32 + 16 + 8 + 4 + 1}{64}$$

$$\frac{61}{64}$$

Oct \rightarrow Bin

01) 0.347_8

$$\underline{\underline{0.011100111_2}}$$

02) 0.2046_8

$$\underline{\underline{0.010000100110_2}}$$

03) 0.357_8

$$\underline{\underline{0.011101111_2}}$$

04) 0.4601_8

$$\underline{\underline{0.00001010111_2}}$$

05) $35,42_8$

$011101 \cdot 100010110_2$
 $\leftarrow \quad \rightarrow$

Bin \rightarrow Oct

01) 0.11101110100_2

0.664_8

02) 0.010011101100_2

0.22354_8

03) 0.10111101011_2

2.753_8

Dec \rightarrow Oct

01) $0.2 \times 8 = 1.6$

$0.6 \times 8 = 4.8$

$0.8 \times 8 = 6.4$

$0.4 \times 8 = 3.2$

$0.2 = 0.1463_8$

02) $0.5 \times 8 = 4.0$

$0.5 = 0.4_8$

03) $0.7 \times 8 = 5.6$

$0.6 \times 8 = 4.8$

$0.8 \times 8 = 6.4$

$0.4 \times 8 = 3.2$

$0.7 = 0.5463_8$

04) $0.4 \times 8 = 3.2$

$0.2 \times 8 = 1.6$

$0.6 \times 8 = 4.8$

$0.8 \times 8 = 6.4$

$0.4 = 0.3146$

Oct → Dec

$$8^{-1} = \frac{1}{8}$$

$$8^{-2} = \frac{1}{64}$$

$$8^{-2} = \frac{1}{5,2}$$

01) $0,35_8$

$$\frac{1}{8} \frac{1}{64}$$

$$\frac{3}{8} + \frac{5}{64}$$

$$\frac{24}{64} + \frac{5}{64}$$

$$\frac{29}{64}$$

03) $0,73_8$

$$\frac{1}{8} \frac{1}{64}$$

$$\frac{7}{8} + \frac{3}{64}$$

$$\frac{56}{64} + \frac{3}{64}$$

$$\frac{59}{64}$$

02) $0,42_8$

$$\frac{1}{8} \frac{1}{64}$$

$$\frac{4}{8} + \frac{2}{64} = \frac{1}{32}$$

$$\frac{16}{32} + \frac{1}{32}$$

$$\frac{17}{32}$$

Hex → Bin

01) $0.7DFA_{16}$

0.011110111101010_2

02) $0.CFAA_{16}$

0.11001111010_2

03) $0.3DE_{16}$

04) $2A.4B_{16}$

00101010.01001011_2

Bin → Hex

01) 0.110110111001_2

02) 0.10111100_2

$0.DB9_{16}$

$1C2_{16}$

03) 0.000111000010_2

04) 0.110010001110_2

$0.C8E_{16}$

$0.8DE_{16}$

Oct → Hex

01) $0431402_8 \times 5_8$

02) $0.67201_8 \times 1_8$

0.011100010101_2

0.1101110100001000_2

$17.011 \times 5_{16}$

$D.D008_{16}$

03) 324.25_8

04) 426.376_8

00110100.010101001000_2

100010110.01111110_2

$D4.548_{16}$

$\frac{1}{020} \frac{1}{01}$

$\frac{1}{28} \frac{3}{020} \frac{6}{020}$

$\frac{1}{2} \frac{4}{28}$