

10101

Convertir a decimal los sig. números binarios

a) $110011,11_2 = 1 \cdot 2^5 + 1 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 + \frac{1}{2} + \frac{1}{2^2} = 32 + 16 + 0 + 0 + 2 + 1 + \frac{1}{2} + \frac{1}{4} = 51,25$

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

b) $101010,01_2 = 1 \cdot 2^5 + 0 \cdot 2^4 + 1 \cdot 2^3 + 0 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0 + 0 \cdot \frac{1}{2} + \frac{1}{4} = 32 + 0 + 8 + 0 + 2 + 0 + 0 + \frac{1}{4} = 42,25$

c) $110000,0111_2 = 1 \cdot 2^6 + 1 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} = 64 + 32 + 0 + 0 + 0 + 0 + 0 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} = 96,875$

d) $111100,101_2 = 1 \cdot 2^6 + 1 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0 + \frac{1}{2} + 0 + \frac{1}{4} = 64 + 32 + 16 + 8 + 0 + 0 + 0 + \frac{1}{2} + 0 + \frac{1}{4} = 120,625$

e) $1011100,10101_2 = 1 \cdot 2^6 + 0 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0 + \frac{1}{2} + 0 + \frac{1}{4} + 0 + \frac{1}{8} = 64 + 0 + 16 + 8 + 4 + 0 + 0 + \frac{1}{2} + 0 + \frac{1}{4} + 0 + \frac{1}{8} = 92,65625$

f)

2^6	2^5	2^4	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}	2^{-4}
1	1	1	0	0	0	1	0	0	0	1

$64 + 32 + 16 + 1$ $+ .062$

113.062_{10} //

g)

2^6	2^5	2^4	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}	2^{-4}
1	0	1	1	0	1	0	1	0	1	0

$64 + 16 + 8 + 2$ $.5 + .125$

88.625_{10} //

h)

2^6	2^5	2^4	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}	2^{-4}	2^{-5}
1	1	1	1	1	1	1	1	1	1	1	1

$64 + 32 + 16 + 8 + 4 + 2 + 1$ $.5 + .25 + .125 + .062 + .031$

127.968

Foto 2

Convertir a binario los sig decimales

a) 15

15/2	Residuo	
7/2	1	
3/2	1	
1	1	

$= 1111_2$

$$\begin{array}{r} 7 \\ 2 \overline{) 15} \\ \underline{14} \\ 1 \end{array} \quad \begin{array}{r} 3 \\ 2 \overline{) 7} \\ \underline{6} \\ 1 \end{array} \quad \begin{array}{r} 1 \\ 2 \overline{) 3} \\ \underline{2} \\ 1 \end{array}$$

b) 21

21/2	Residuo	
10/2	0	
5/2	1	
2/2	0	
1	1	

$= 10101_2$

$$\begin{array}{r} 10 \\ 2 \overline{) 21} \\ \underline{20} \\ 1 \end{array} \quad \begin{array}{r} 5 \\ 2 \overline{) 10} \\ \underline{10} \\ 0 \end{array} \quad \begin{array}{r} 2 \\ 2 \overline{) 5} \\ \underline{4} \\ 1 \end{array} \quad \begin{array}{r} 1 \\ 2 \overline{) 2} \\ \underline{2} \\ 0 \end{array}$$

c) 28

28/2	Residuo	
14/2	0	
7/2	1	
3/2	1	
1	1	

$= 11100_2$

$$\begin{array}{r} 14 \\ 2 \overline{) 28} \\ \underline{28} \\ 0 \end{array} \quad \begin{array}{r} 7 \\ 2 \overline{) 14} \\ \underline{14} \\ 0 \end{array}$$

d) 34

34/2	Residuo	
17/2	1	
8/2	0	
4/2	0	

$= 100010_2$

$$\begin{array}{r} 17 \\ 2 \overline{) 34} \\ \underline{34} \\ 0 \end{array} \quad \begin{array}{r} 8 \\ 2 \overline{) 17} \\ \underline{16} \\ 1 \end{array} \quad \begin{array}{r} 4 \\ 2 \overline{) 8} \\ \underline{8} \\ 0 \end{array} \quad \begin{array}{r} 2 \\ 2 \overline{) 4} \\ \underline{4} \\ 0 \end{array}$$

$$\begin{array}{r} 1 \\ 2 \overline{) 2} \\ \underline{2} \\ 0 \end{array}$$

e)

	Residuo	
40/2	0	
20/2	0	
10/2	0	
5/2	1	= 101000
2/2	0	
1	1	

$$2 \overline{) 59} \begin{array}{r} 29 \\ 58 \\ \hline 1 \end{array}$$

$$2 \overline{) 29} \begin{array}{r} 14 \\ 28 \\ \hline 1 \end{array}$$

f) 59

Residuo

59/2	1	1	
29/2	1	2	
14/2	0	4	
7/2	1	8	
3/2	1	16	
1	1	32	

= 111011₂

g) 65

Residuo

65/2	1
32/2	0
16/2	0
8/2	0
4/2	0
2/2	0
1	1

h) 73

Residuo

73/2	1	7
36/2	0	2
18/2	0	9
9/2	1	4
4/2	0	16
2/2	0	32
1	1	64

100

$$= 1001001_2$$

$$= 1000001_2$$

Foto 3

Convertir a decimal los sig num octales

$$a) 12_8 = \begin{matrix} 8^1 & 8^0 \\ 1 & 2 \end{matrix} = (1 \times 8^1) + (2 \times 8^0) = 8 + 2 = 10$$

$$b) 27_8 = \begin{matrix} 8^1 & 8^0 \\ 2 & 7 \end{matrix} = (2 \times 8^1) + (7 \times 8^0) = 16 + 7 = 23$$

$$c) 56_8 = \begin{matrix} 8^1 & 8^0 \\ 5 & 6 \end{matrix} = (5 \times 8^1) + (6 \times 8^0) = 40 + 6 = 46$$

$$d) 64_8 = \begin{matrix} 8^1 & 8^0 \\ 6 & 4 \end{matrix} = (6 \times 8^1) + (4 \times 8^0) = 48 + 4 = 52$$

$$e) 103_8 = \begin{matrix} 8^2 & 8^1 & 8^0 \\ 1 & 0 & 3 \end{matrix} = (1 \times 8^2) + (0 \times 8^1) + (3 \times 8^0) = 64 + 3 = 67$$

$$f) 557_8 = \begin{matrix} 8^2 & 8^1 & 8^0 \\ 5 & 5 & 7 \end{matrix} = (5 \times 8^2) + (5 \times 8^1) + (7 \times 8^0) = 320 + 40 + 7 = 367$$

$$g) 163_8 = \begin{matrix} 8^2 & 8^1 & 8^0 \\ 1 & 6 & 3 \end{matrix} = (1 \times 64) + (6 \times 8) + (3 \times 1) = 64 + 48 + 3 = 115$$

$$h) 1024_8 = \begin{matrix} 8^3 & 8^2 & 8^1 & 8^0 \\ 1 & 0 & 2 & 4 \end{matrix} = (1 \times 512) + (0 \times 64) + (2 \times 8) + (4 \times 1) = 512 + 16 + 4 = 532$$

$$i) 7765_8 = \begin{matrix} 8^3 & 8^2 & 8^1 & 8^0 \\ 7 & 7 & 6 & 5 \end{matrix} = (7 \times 512) + (7 \times 64) + (6 \times 8) + (5 \times 1) = 3584 + 448 + 48 + 5 = 4085$$

Convertir a octal los sig decimales

$$a) 15 \quad \begin{matrix} 8 \overline{) 15} \\ \underline{8} \\ 7 \end{matrix} \quad \begin{matrix} \text{Residuo} \\ 7 \end{matrix} = 17_8$$

$$b) 27 \quad \begin{matrix} 8 \overline{) 27} \\ \underline{24} \\ 3 \end{matrix} \quad \begin{matrix} \text{Residuo} \\ 3 \end{matrix} = 33_8$$

$$c) 46 \quad \begin{matrix} 8 \overline{) 46} \\ \underline{40} \\ 6 \end{matrix} \quad \begin{matrix} \text{Residuo} \\ 6 \end{matrix} = 56_8$$

$$d) 70 \quad \begin{matrix} 8 \overline{) 70} \\ \underline{64} \\ 6 \end{matrix} \quad \begin{matrix} \text{Residuo} \\ 6 \end{matrix} = 106_{10}$$

Foto 3

decimal - Octal

$$\begin{array}{r} 713 \\ 8 \\ \hline 104 \end{array}$$

$$\begin{array}{r} 15 \\ 8 \\ \hline 120 \end{array}$$

$$\begin{array}{r} 79 \\ 8 \\ \hline 152 \end{array}$$

$$\begin{array}{r} 97 \\ 8 \\ \hline 136 \end{array}$$

e) 100_{10} Residuo

$100/8 \quad 4$

$12/8 \quad 4$

$1 \quad 1$

$= 144_8$

f) 142_{10}

Residuo

$142/8 \quad 6$

$17/8 \quad 1$

$2 \quad 2$

$= 216_8$

g) 219

Residuo

$219/8 \quad 3$

$27/8 \quad 3$

$3 \quad 3$

$= 333_8$

h) 435

Residuo

$435/8 \quad 3$

$54/8 \quad 6$

$6 \quad 6$

$= 663_8$

Convertir a binario los sig. Num. Octales

a) $13_8 = \begin{array}{cc} 1 & 3 \\ 001 & 011 \end{array} = 1011_2$

b) $57_8 = \begin{array}{cc} 5 & 7 \\ 101 & 111 \end{array} = 101111_2$

c) $101_8 = \begin{array}{ccc} 1 & 0 & 1 \\ 001 & 000 & 001 \end{array} = 100001_2$

d) $321_8 = \begin{array}{ccc} 3 & 2 & 1 \\ 011 & 010 & 001 \end{array} = 11010001_2$

e) $540_8 = \begin{array}{ccc} 5 & 4 & 0 \\ 101 & 100 & 000 \end{array} = 101100000$

f) $4653_8 = \begin{array}{ccc} 4 & 6 & 5 & 3 \\ 100 & 110 & 101 & 011 \end{array} = 100110101011$

$$g) 13271 = \begin{array}{cccc} 1 & 3 & 2 & 7 & 1 \\ 001 & 011 & 010 & 111 & 001 \end{array} = 001011010111001$$

$$h) 45600_8 = \begin{array}{cccc} 4 & 5 & 6 & 0 & 0 \\ 100 & 101 & 110 & 000 & 000 \end{array} = 100101110000000$$

$$i) 100213_8 = \begin{array}{ccccccc} 1 & 0 & 0 & 2 & 1 & 3 \\ 001 & 000 & 000 & 010 & 001 & 011 \end{array} = 1000000010001011$$

Convertir a octal los s.g binarios

$$a) 111 = \begin{array}{c} 111 \\ 7 \end{array} = 7_8$$

$$b) 10 = 010 = 2$$

$$c) 11011 = \begin{array}{cc} 110 & 111 \\ 6 & 7 \end{array} = 67$$

$$d) 101010 = \begin{array}{cc} 101 & 010 \\ 6 & 2 \end{array} = 62$$

$$e) 1100 = \begin{array}{cc} 001 & 100 \\ 1 & 4 \end{array} = 14$$

$$f) 1011110 = \begin{array}{ccc} 001 & 011 & 110 \\ 1 & 3 & 6 \end{array} = 136$$

$$g) 101100011001 = \begin{array}{cccc} 101 & 100 & 011 & 001 \\ 5 & 4 & 3 & 1 \end{array} = 5431$$

$$h) 10110000011 = \begin{array}{cccc} 010 & 110 & 000 & 011 \\ 2 & 6 & 6 & 3 \end{array} = 2663$$

$$i) 11111110111000 = \begin{array}{cccc} 111 & 111 & 101 & 111 & 000 \\ 7 & 7 & 5 & 7 & 0 \end{array} = 77570$$