

10101

Convertir a decimal los sig. números binarios

$$a) 110011,11_2 = \begin{matrix} 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & 2^{-1} & 2^{-2} \\ 1 & 1 & 0 & 0 & 1 & 1 & 1 & 1 \end{matrix}$$

$$32 + 16 + 0 + 0 + 2 + 1 + \frac{1}{2} + \frac{1}{2^2} = 51,22$$

$$+ \frac{1}{2} + \frac{1}{4} = \underline{51.75//}$$

$$\begin{aligned} 2^0 &= 1 \\ 2^1 &= 2 \\ 2^2 &= 4 \\ 2^3 &= 8 \\ 2^4 &= 16 \\ 2^5 &= 32 \\ 2^6 &= 64 \\ 2^7 &= 128 \\ 2^8 &= 256 \end{aligned}$$

$$b) \begin{matrix} 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & 2^{-1} & 2^{-2} \\ 1 & 0 & 1 & 0 & 1 & 0 & 0 & 1 \end{matrix}$$

$$32 + 0 + 8 + 0 + 2 + 0 + 0 + \frac{1}{4}$$

$$c) \begin{matrix} 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & 2^{-1} & 2^{-2} & 2^{-3} \\ 1 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 \end{matrix}$$

$$164 + 0 + 0 + 0 + 0 + 0 + 1 + .5 + .25 + .125$$

$$\underline{165.875//}$$

$$d) \begin{matrix} 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & 2^{-1} & 2^{-2} & 2^{-3} \\ 1 & 1 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 1 \end{matrix}$$

$$64 + 32 + 16 + 8 + 0 + 0 + 0 + .625$$

$$\underline{120.625//}$$

$$e) \begin{matrix} 2^6 & 2^5 & 2^4 & 2^3 & 2^2 & 2^1 & 2^0 & 2^{-1} & 2^{-2} & 2^{-3} & 2^{-4} & 2^{-5} \\ 1 & 0 & 1 & 1 & 1 & 1 & 0 & 0 & 1 & 0 & 1 & 0 & 1 \end{matrix}$$

$$64 + 0 + 16 + 8 + 4 + 0 + 0 + .5 + .125 + .0312$$

$$92.656$$

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	

$= 100010_2$

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

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	

= 111011<sub>2</sub>

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	8
9/2	1	4
4/2	0	16
2/2	0	32
1	1	64

$$= 1001001_2$$

$$= 1000001_2$$

# 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

713  
8  
104

75  
8  
120

79  
8  
152

77  
8  
136

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

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

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

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

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

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

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

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

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

Convertir a octal los s.g binarios

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

$$b) 10 = 010 = 2$$

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

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

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

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

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

$$h) 10110000011 = \begin{array}{cccc} 010 & 110 & 000 & 011 \\ 2 & 6 & 0 & 3 \end{array} = 2603$$

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

# Convertir a decimal los sig Non Foto 4 hexadecimales

$$a) 23_{16} = \begin{matrix} 16^1 & 16^0 \\ 2 & 3 \end{matrix} = (2 \times 16) + (3 \times 1) = 32 + 3 = 35$$

$$b) 92_{16} = \begin{matrix} 16^1 & 16^0 \\ 9 & 2 \end{matrix} = (9 \times 16) + (2 \times 1) = 144 + 2 = 146$$

$$c) 1A_{16} = \begin{matrix} 16^1 & 16^0 \\ 1 & A(10) \end{matrix} = (1 \times 16) + (10 \times 1) = 16 + 10 = 26$$

$$d) 8D_{16} = \begin{matrix} 16^1 & 16^0 \\ 8 & D(13) \end{matrix} = (8 \times 16) + (13 \times 1) = 128 + 13 = 141$$

$$e) F3_{16} = \begin{matrix} 16^1 & 16^0 \\ 15(F) & 3 \end{matrix} = (15 \times 16) + (3 \times 1) = 240 + 3 = 243$$

$$f) EB_{16} = \begin{matrix} 16^1 & 16^0 \\ 14 & 11 \end{matrix} = (14 \times 16) + (11 \times 1) = 224 + 11 = 235$$

$$g) 5C2_{16} = \begin{matrix} 16^2 & 16^1 & 16^0 \\ 5 & 12 & 2 \end{matrix} = (5 \times 16^2) + (12 \times 16) + (2 \times 1) =$$

$$h) 700_{16} = \begin{matrix} 16^2 & 16^1 & 16^0 \\ 7 & 0 & 0 \end{matrix} = (7 \times 16^2) + 0 = 1792$$

## Convertir a Hexadecimal los sig Números Decimales

$$a) 8$$

Como

Decimal 0, 1, 2, 3, ..., 7, 8, 9, 10

Hexa 0, 1, 2, 3, ..., 7, 8, 9, A

$$8_{10} = 8_{16}$$

$$b) 14 = E_{16}$$

$$d) 52$$

$$c) \begin{array}{r} 33 \\ 33/16 \\ 2 \end{array} \begin{array}{l} \text{Residuo} \\ 1 \\ 2 \end{array}$$

$$= 21_{16}$$

$$\begin{array}{r} 52 \\ 52/16 \\ 3 \end{array} \begin{array}{l} \text{Residuo} \\ 4 \\ 3 \end{array}$$

$$= 34_{16}$$