

BINARIO

Operaciones aritméticas

SUMA

$$\begin{array}{r} 168421 \\ + 1111 \\ \hline 110101 \end{array}$$

$$\begin{array}{r} 10 \\ + 11 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 212 \\ + 21 \\ \hline 231 \end{array}$$

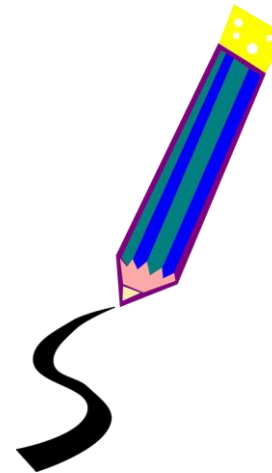
$$\begin{array}{r} 312 \\ + 11 \\ \hline 323 \end{array}$$

$$\begin{array}{r} 0 \\ + 0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 0 \\ + 1 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 1 \\ + 0 \\ \hline 1 \end{array}$$

$$\begin{array}{r} 1 \\ + 1 \\ \hline 10 \end{array}$$



$$\begin{array}{r} 1010 \\ + 100 \\ \hline 1110 \\ 1110 \end{array}$$

$$\begin{array}{r} 1110 \\ + 111 \\ \hline 10101 \\ 10101 \end{array}$$

$$\begin{array}{r} 1111 \\ + 1 \\ \hline 10000 \end{array}$$

$$\begin{array}{r} 1111 \\ + 111 \\ \hline 11011 \\ 11011 \end{array}$$

RESTA

$$10_2 \rightarrow 2_{10}$$



$$\begin{array}{r} \begin{array}{cccccc} & 0 & 10 & & & \\ & \cancel{1} & \cancel{1} & 0 & 0 & 1 \\ - & 1 & 1 & 0 & 1 & \\ \hline & 1 & 1 & 0 & 0 & \end{array} & \begin{array}{r} \begin{array}{cccccc} & 1 & 1 & 1 & & \\ & \cancel{1} & \cancel{0} & \cancel{0} & \cancel{0} & 0 \\ - & 0 & 0 & 0 & 1 & \\ \hline & 1 & 1 & 1 & 1 & \\ \hline & 1 & 1 & 1 & 1 & \end{array} \\ \begin{array}{r} \begin{array}{cccccc} & 0 & 1 & 10 & 10 & \\ & \cancel{1} & 0 & \cancel{1} & \cancel{1} & 0 \\ - & 1 & 1 & 1 & 1 & \\ \hline & 0 & 0 & 1 & 1 & 1 \end{array} \end{array} \end{array}$$

Handwritten annotations in red show the conversion of binary values to decimal: $10_2 \rightarrow 2_{10}$ and $1_2 \rightarrow 1_{10}$. The final result of the subtraction is 7.

MULTIPLICACION

$$\begin{array}{r} 101 \\ \times 1101 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ 101 \\ 1010 \\ 10100 \\ 101000 \\ \hline \end{array}$$

$$1000001$$

$$\begin{array}{r} 1,01 \\ \times 1,0 \\ \hline \end{array}$$

$$\begin{array}{r} 101,0 \\ \times 10 \\ \hline 10100 \\ 0 \\ \hline 1010000 \end{array}$$

DIVISION

Ejemplo: 1101/100

$$\begin{array}{r} 1101 \overline{) 100} \\ \underline{-100} \\ 101 \\ \underline{-100} \\ 1 \end{array}$$

1101,0000

$$\begin{array}{r} 1101 \overline{) 100} \\ \underline{-100} \\ 101 \\ \underline{-100} \\ 100 \\ \underline{-100} \\ 0 \end{array}$$

DIVISION

$$3,2/2 \rightarrow 32/20 \quad \frac{12}{16} \Rightarrow 1,6 \quad \left\{ \frac{3,2}{2} \times \frac{10}{10} \right.$$

Ejercicio 15.1 $61,2 / 3,55 \times 100$

$$\begin{array}{r} 61,2 \\ \times 100 \\ \hline 6120 \end{array} \quad \begin{array}{r} 3,55 \\ \times 100 \\ \hline 355 \end{array}$$

$$\begin{array}{r} 111001 \\ -1001 \\ \hline 01010 \\ -1001 \\ \hline 1100 \\ -1001 \\ \hline 1100 \end{array}$$

$$\begin{array}{r} 1001 \\ \hline 110.\underline{0}101 \end{array}$$

$$\begin{array}{r} 61,2 \\ \times 1 \\ \hline 61,2 \\ \times 100 \\ \hline 6120 \\ \times 100 \\ \hline 6120 \end{array}$$

15. Resuelva los siguientes cocientes binarios.

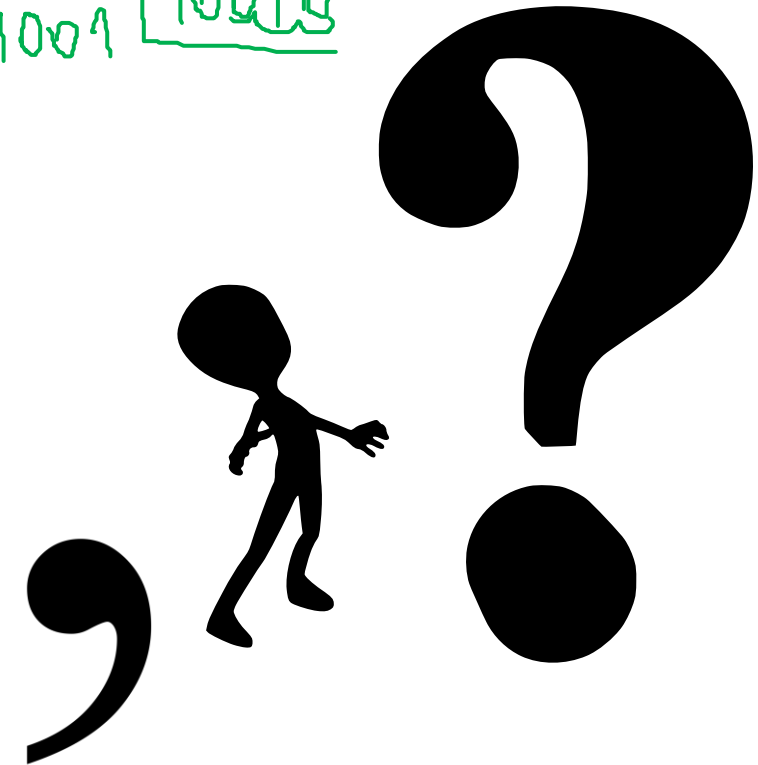
15.1.- $111001 / 1001$

- a) 11,101
- b) 100,101
- c) 110,01 periódico
- d) 111,101

15.2.- $111,001 / 10,01$

- a) 110,01
- b) 1,001
- c) 0,000111
- d) 11,001 periódico

$$111001 \overline{)10010}$$



FIN

¡Nos preparamos para saber
como se almacena
internamente la información!

