



UNIVERSITÀ DEGLI STUDI DI SALERNO

Fondamenti di Informatica

Linguaggi, Codifica e Rappresentazione dell'Informazione
– Esercizi svolti in aula (penna digitale) – Parte 1 –

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Esercizi

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Binario \rightarrow Decimale (1)

posizioni
 \hookrightarrow 6 5 4 3 2 1 0

1 1 0 1 1 0 1₂

$1 \times 2^0 = 1 \times 1 = 1 +$
 $0 \times 2^1 = 0 \times 2 = 0 +$
 $1 \times 2^2 = 1 \times 4 = 4 +$
 $1 \times 2^3 = 1 \times 8 = 8 +$
 $0 \times 2^4 = 0 \times 16 = 0 +$
 $1 \times 2^5 = 1 \times 32 = 32 +$
 $1 \times 2^6 = 1 \times 64 = 64 =$

109₁₀

1 1 0 1 1 0 1₂ = 109₁₀

Binario \rightarrow Decimale (2)

6 5 4 3 2 1 0
1 1 1 0 0 1 0₂

$$\begin{aligned} 0 \times 2^0 &= 0 \times 1 = 0 + \\ 1 \times 2^1 &= 1 \times 2 = 2 + \\ 0 \times 2^2 &= 0 \times 4 = 0 + \\ 0 \times 2^3 &= 0 \times 8 = 0 + \\ 1 \times 2^4 &= 1 \times 16 = 16 + \\ 1 \times 2^5 &= 1 \times 32 = 32 + \\ 1 \times 2^6 &= 1 \times 64 = 64 = \\ &\quad \underline{\hspace{1.5cm}} \\ &\quad 114 \end{aligned}$$

$$1110010_2 = 114_{10}$$

Decimale \rightarrow Binario (1)

$25_{10} = ?_2$

25 | 2
12
6
3
1
0

1 0 0 1 0

4 3 2 1 0 α posizioni

Quoziente zero

$25_{10} = 11001_2$

Decimale \rightarrow Binario (2)

$97_{10} = ?_2$

97 | 2
1 48 | 2
0 24 | 2
0 12 | 2
0 6 | 2
0 3 | 2
1 1 | 2
1 0

$97_{10} = 1100001_2$

The diagram illustrates the conversion of the decimal number 97 to binary. It shows a series of divisions by 2, with the remainders written in red. A red arrow points from the final remainder '1' back to the first remainder '1'. The final binary result is circled in black.