

A. Conversión de Medidas Informáticas

Convertir:

1. 1,4 GB a Kb

$$1,4 * 1024 = 1,433.6 \text{ Mb}$$

$$1,433.6 * 1024 = \underline{1,468,006.4 \text{ Kb}}$$

2. 1,000,000 KB a Mb

$$1000000 / 1024 = \underline{976.5625 \text{ Mb}}$$

3. 1 EB a GB

$$1 * 1024 = 1024 \text{ PB}$$

$$1024 \text{ PB} * 1024 = 1,048,576 \text{ Tb}$$

$$1,048,576 \text{ Tb} * 1024 = \underline{1,073,741,824 \text{ Gb}}$$

4. 1 TB a MB

$$1 \text{ TB} * 1024 = 1024 \text{ Gb}$$

$$1024 \text{ Gb} * 1024 = \underline{1,048,576 \text{ Mb}}$$

5. 10,000 GB a TB

$$10,000 \text{ Gb} / 1024 = \underline{9.765625 \text{ Tb}}$$

**B. Conversión de otras potencias a Decimal, con el método Notación Posicional**

B1. De binario a decimal

128 64 32 16 8 4 2 1

$$11100101_2 = 128 + 64 + 32 + 4 + 1 = \underline{229}$$

$$01001001_2 = 64 + 8 + 1 = \underline{73}$$

$$11011_2 = 16 + 8 + 2 + 1 = \underline{27}$$

$$1000001_2 = 64 + 1 = \underline{65}$$

$$1001111_2 = 64 + 8 + 4 + 2 + 1 = \underline{79}$$

B2. De octal a decimal

512 64 8 1

$$1234_8 = 512 * 1 + 64 * 2 + 8 * 3 + 1 * 4 = 512 + 128 + 24 + 4 = \underline{668}$$

$$2547_8 = 512 * 2 + 64 * 5 + 8 * 4 + 1 * 7 = 1024 + 320 + 32 + 7 = \underline{1383}$$

$$752_8 = 64 * 7 + 8 * 5 + 1 * 2 = 448 + 40 + 2 = \underline{490}$$

$$75_8 = 8 * 7 + 1 * 5 = 56 + 5 = \underline{61}$$

$$365_8 = 64 * 3 + 8 * 6 + 1 * 5 = 192 + 48 + 5 = \underline{245}$$

B3. De hexadecimal a decimal

65536 4096 256 16 1

$$0xD0E2 = 4096 * 13 + 256 * 0 + 16 * 14 + 1 * 2 = 53248 + 0 + 224 + 2 = \underline{53474}$$

$$45AC2_{16} = 65536 * 4 + 4096 * 5 + 256 * 10 + 16 * 12 + 1 * 2 = 262144 + 20480 + 2560 + 192 + 2 = \underline{285378}$$

$$0xABC = 256 * 10 + 16 * 11 + 1 * 12 = 2560 + 176 + 12 = \underline{2748}$$

$$A1B1_{16} = 4096 * 10 + 256 * 1 + 16 * 11 + 1 * 1 = 40960 + 256 + 176 + 1 = \underline{41393}$$

$$0xF4D=256*15+16*4+1*13=3840+64+13=\underline{3917}$$

### C. Conversión de Decimal a Binario con el método de restas y potencias descendentes

128 64 32 16 8 4 2 1

$$175=\underline{10101111}_2$$

$$175-128=47$$

$$47-32=15$$

$$15-8=7$$

$$7-4=3$$

$$3-2=1$$

$$1-1=0$$

$$255=\underline{11111111}_2$$

$$255-128=127$$

$$127-64=63$$

$$63-32=31$$

$$31-16=15$$

$$15-8=7$$

$$7-4=3$$

$$3-2=1$$

$$1-1=0$$

$$124=\underline{01111100}_2$$

$$124-64=60$$

$$60-32=28$$

$$28-16=12$$

$$12-8=4$$

$$4-4=0$$

128 64 32 16 8 4 2 1

$$87 = \underline{01010111}_2$$

$$87 - 64 = 23$$

$$23 - 16 = 7$$

$$7 - 4 = 3$$

$$3 - 2 = 1$$

$$1 - 1 = 0$$

$$17 = \underline{00010001}_2$$

$$17 - 16 = 1$$

$$1 - 1 = 0$$

#### D. Conversión de Decimal a otras potencias con el método de Divisiones Sucesivas

d.1) De decimal a binario

$$157 = \underline{10011101}_2$$

$$\begin{array}{r} 157 \overline{)2} \\ \underline{-14} \phantom{00} 78 \\ \underline{-17} \phantom{00} 61 \\ \underline{-16} \phantom{00} 45 \\ \underline{-1} \phantom{00} 44 \end{array} \quad \begin{array}{r} 78 \overline{)2} \\ \underline{-6} \phantom{00} 39 \\ \underline{-18} \phantom{00} 21 \\ \underline{-18} \phantom{00} 3 \end{array} \quad \begin{array}{r} 39 \overline{)2} \\ \underline{-2} \phantom{00} 19 \\ \underline{-19} \phantom{00} 0 \end{array} \quad \begin{array}{r} 19 \overline{)2} \\ \underline{-18} \phantom{00} 1 \end{array} \quad \begin{array}{r} 9 \overline{)2} \\ \underline{-8} \phantom{00} 1 \end{array} \quad \begin{array}{r} 4 \overline{)2} \\ \underline{-4} \phantom{00} 0 \end{array} \quad \begin{array}{r} 2 \overline{)2} \\ \underline{-2} \phantom{00} 0 \end{array}$$

$$10111001 = 10011101$$

$$64 = \underline{1000000}_2$$

$$\begin{array}{r} 64 \overline{)2} \\ \underline{-6} \phantom{00} 32 \\ \underline{-4} \phantom{00} 28 \\ \underline{-4} \phantom{00} 24 \\ \underline{-4} \phantom{00} 20 \\ \underline{-4} \phantom{00} 16 \\ \underline{-4} \phantom{00} 12 \\ \underline{-4} \phantom{00} 8 \\ \underline{-8} \phantom{00} 0 \end{array} \quad \begin{array}{r} 32 \overline{)2} \\ \underline{-2} \phantom{00} 16 \\ \underline{-12} \phantom{00} 4 \\ \underline{-12} \phantom{00} 0 \end{array} \quad \begin{array}{r} 16 \overline{)2} \\ \underline{-16} \phantom{00} 0 \end{array} \quad \begin{array}{r} 8 \overline{)2} \\ \underline{-8} \phantom{00} 0 \end{array} \quad \begin{array}{r} 4 \overline{)2} \\ \underline{-4} \phantom{00} 0 \end{array} \quad \begin{array}{r} 2 \overline{)2} \\ \underline{-2} \phantom{00} 0 \end{array}$$

$$0000001 = 1000000$$

$$452 = \underline{111000100}_2$$

$$\begin{array}{r}
 452 \overline{)2} \\
 \underline{-4} \phantom{00} 226 \\
 \underline{-5} \phantom{00} 113 \\
 \underline{-4} \phantom{00} 56 \\
 \underline{-12} \phantom{00} 16 \\
 \underline{-12} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 226 \overline{)2} \\
 \underline{-2} \phantom{00} 113 \\
 \underline{-2} \phantom{00} 56 \\
 \underline{-6} \phantom{00} 16 \\
 \underline{-6} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 113 \overline{)2} \\
 \underline{-10} \phantom{00} 56 \\
 \underline{-13} \phantom{00} 16 \\
 \underline{-12} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 56 \overline{)2} \\
 \underline{-4} \phantom{00} 28 \\
 \underline{-16} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 28 \overline{)2} \\
 \underline{-2} \phantom{00} 14 \\
 \underline{-8} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 14 \overline{)2} \\
 \underline{-14} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 7 \overline{)2} \\
 \underline{-6} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 3 \overline{)2} \\
 \underline{-2} \phantom{00} 1
 \end{array}$$

$$001000111 = 111000100$$

$$999 = \underline{1111100111}_2$$

$$\begin{array}{r}
 999 \overline{)2} \\
 \underline{-8} \phantom{00} 499 \\
 \underline{-19} \phantom{00} 18 \\
 \underline{-18} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 499 \overline{)2} \\
 \underline{-4} \phantom{00} 249 \\
 \underline{-9} \phantom{00} 19 \\
 \underline{-18} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 249 \overline{)2} \\
 \underline{-2} \phantom{00} 124 \\
 \underline{-4} \phantom{00} 9 \\
 \underline{-8} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 124 \overline{)2} \\
 \underline{-12} \phantom{00} 62 \\
 \underline{-4} \phantom{00} 2 \\
 \underline{-4} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 62 \overline{)2} \\
 \underline{-6} \phantom{00} 31 \\
 \underline{-2} \phantom{00} 11 \\
 \underline{-10} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 31 \overline{)2} \\
 \underline{-2} \phantom{00} 15 \\
 \underline{-11} \phantom{00} 4 \\
 \underline{-14} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 15 \overline{)2} \\
 \underline{-14} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 7 \overline{)2} \\
 \underline{-6} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 3 \overline{)2} \\
 \underline{-2} \phantom{00} 1
 \end{array}$$

$$1110011111 = 1111100111$$

$$101 = \underline{1100101}_2$$

$$\begin{array}{r}
 50 \overline{)2} \\
 \underline{-4} \phantom{00} 25 \\
 \underline{-10} \phantom{00} 10 \\
 \underline{-10} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 25 \overline{)2} \\
 \underline{-2} \phantom{00} 12 \\
 \underline{-5} \phantom{00} 5 \\
 \underline{-4} \phantom{00} 1
 \end{array}
 \quad
 \begin{array}{r}
 12 \overline{)2} \\
 \underline{-12} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 6 \overline{)2} \\
 \underline{-6} \phantom{00} 0
 \end{array}
 \quad
 \begin{array}{r}
 3 \overline{)2} \\
 \underline{-2} \phantom{00} 1
 \end{array}$$

$$1010011 = 1100101$$

d.2) De decimal a octal

$$157 = \underline{235}_8$$

$$\begin{array}{r} 157 \overline{)8} \\ \underline{-8} \phantom{19} \\ 77 \\ \underline{-72} \\ 5 \end{array} \quad \begin{array}{r} 19 \overline{)8} \\ \underline{-16} \\ 2 \\ \underline{-3} \end{array}$$

$$532 = \underline{235}_8$$

$$64 = \underline{100}_8$$

$$\begin{array}{r} 64 \overline{)8} \\ \underline{-64} \\ 0 \end{array} \quad \begin{array}{r} 8 \overline{)8} \\ \underline{-8} \\ 0 \end{array}$$

$$001 = \underline{100}_8$$

$$452 = \underline{704}_8$$

$$\begin{array}{r} 452 \overline{)8} \\ \underline{-40} \phantom{56} \\ 52 \\ \underline{-48} \\ 4 \end{array} \quad \begin{array}{r} 56 \overline{)8} \\ \underline{-56} \\ 0 \end{array}$$

$$407 = \underline{704}_8$$

$$999 = \underline{1747}_8$$

$$\begin{array}{r} 999 \overline{)8} \\ \underline{-8} \phantom{124} \\ 19 \\ \underline{-16} \\ 39 \\ \underline{-32} \\ 7 \end{array} \quad \begin{array}{r} 124 \overline{)8} \\ \underline{-8} \phantom{15} \\ 44 \\ \underline{-40} \\ 4 \end{array} \quad \begin{array}{r} 15 \overline{)8} \\ \underline{-8} \\ 7 \end{array}$$

$$7471 = \underline{1747}_8$$

$$101 = \underline{145}_8$$

$$\begin{array}{r} 101 \overline{)8} \\ - 8 \overline{)12} \\ \hline 21 \\ - 16 \\ \hline 5 \end{array} \quad \begin{array}{r} 12 \overline{)8} \\ - 8 \overline{)1} \\ \hline 4 \end{array}$$

$$541 = 145$$

d.3) De decimal a Hexadecimal

Recordemos que :  
10=A, 11=B, 12=C, 13=D, 14=E y 15=F

$$157 = \underline{9D}_{16}$$

$$\begin{array}{r} 157 \overline{)16} \\ - 144 \overline{)9} \\ \hline 13 \end{array}$$

$$139 = 9D$$

$$64 = \underline{40}_{16}$$

$$\begin{array}{r} 64 \overline{)16} \\ - 64 \overline{)4} \\ \hline 0 \end{array}$$

$$04 = 40$$

$$452 = \underline{1C4}_{16}$$

$$\begin{array}{r} 452 \overline{)16} \\ - 32 \overline{)28} \\ \hline 132 \\ - 128 \\ \hline 4 \end{array} \quad \begin{array}{r} 28 \overline{)16} \\ - 16 \overline{)1} \\ \hline 12 \end{array}$$

$$4121 = 1C4$$

$$999 = \underline{3E7}_{16}$$

$$\begin{array}{r} 999 \overline{)16} \\ \underline{-96} \phantom{00} \overline{)62} \\ 39 \phantom{00} \overline{)62} \phantom{00} \overline{)16} \\ \underline{-32} \phantom{00} \overline{)48} \phantom{00} \overline{)3} \\ 7 \phantom{00} \overline{)14} \phantom{00} \overline{)3} \\ \phantom{00} \phantom{00} \overline{)14} \phantom{00} \overline{)3} \\ \phantom{00} \phantom{00} \phantom{00} \overline{)14} \phantom{00} \overline{)3} \\ \phantom{00} \phantom{00} \phantom{00} \phantom{00} \overline{)14} \phantom{00} \overline{)3} \end{array}$$

$$7143 = 3E7$$

$$101 = \underline{65}_{16}$$

$$\begin{array}{r} 101 \overline{)16} \\ \underline{-96} \phantom{00} \overline{)6} \\ 5 \phantom{00} \overline{)6} \end{array}$$

$$56 = 65$$

#### E. Conversión de Binario a Hexadecimal

Recordemos que :  
10=A, 11=B, 12=C, 13=D, 14=E y 15=F

**8 4 2 1**

$$11100000_2 = \underline{E0}_{16}$$

$$1110 = 14 \quad 0000 = 0$$

$$1001111_2 = \underline{4E}_{16}$$

$$0100 = 4 \quad 1111 = 15$$

$$11011_2 = \underline{1B}_{16}$$

$$0001 = 1 \quad 1011 = 11$$

$$1000001_2 = \underline{41}_{16}$$

$$0100 = 4 \quad 0001 = 1$$



$$1001010_2 = \underline{4A}_{16}$$

$$0100 = 4 \quad 1010 = 10$$

## F. Conversión de Hexadecimal a Binario

**8 4 2 1**

Recordemos que :  
10=A, 11=B, 12=C, 13=D, 14=E y 15=F

$$0xD0 = \underline{11010000}_2$$

$$D=13=1101, 0=0000$$

$$45A_{16} = \underline{010001011010}_2$$

$$4=0100, 5=0101, A=10=1010$$

$$0xAB = \underline{10101011}_2$$

$$A=10=1010, B=11=1011$$

$$A1_6 = \underline{10100001}_2$$

$$A=10=1010, 1=0001$$

$$0xF4D = \underline{111101001101}_2$$

$$F=15=1111, 4=0100, D=13=1101$$