

## Ejercicios - Laboratorio 03

### 1. Decimal a binario:

1. -400:  $\begin{array}{cccccccccccc} 11 & 10 & 9 & 8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\ | & | & | & | & | & | & | & | & | & | & | & | \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{array} \Rightarrow 100110010000$

$\begin{array}{cccc} & 256 & & 16 \\ - & 128 & & \end{array}$

2. 3054:  $\begin{array}{cccccccccccc} 12 & 11 & 10 & 9 & 8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\ | & | & | & | & | & | & | & | & | & | & | & | & | \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{array} \Rightarrow 0101111101110$

$\begin{array}{ccccccc} & 256 & 64 & & 4 & & 1 \\ 2048 & 512 & 128 & 32 & 8 & 2 & \end{array}$

3. -3054:  $\begin{array}{cccccccccccc} 12 & 11 & 10 & 9 & 8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\ | & | & | & | & | & | & | & | & | & | & | & | & | \\ 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{array} \Rightarrow 1101111101110$

$\begin{array}{ccccccc} - & 1024 & 256 & 64 & & 4 & & 1 \\ 2048 & 512 & 128 & 32 & 8 & 2 & \end{array}$

### 2. Operaciones de suma:

1.  $10101111 + 10101: \begin{array}{r} 10101111 \\ + 00010101 \\ \hline 11000100 \end{array}$

2.  $11110101 + 110110101: \begin{array}{r} 011110101 \\ + 110110101 \\ \hline 11010101010 \end{array}$

3.  $10111101 + 10101: \begin{array}{r} 10111101 \\ + 00010101 \\ \hline 11010010 \end{array}$

### 3. Operaciones de resta:

1.  $10100001 - 11101: \begin{array}{r} 10100001 \\ A1 = 11100010 \\ A2 = 11100011 \\ + 11100011 \\ \hline 110000100 \end{array}$

2.  $11100101 - 10010101: \begin{array}{r} 11100101 \\ A1 = 11101010 \\ A2 = 11101011 \\ + 11101011 \\ \hline 111010000 \end{array}$

3.  $110111 - 1011 : 10111$

$A1 = 1100$   $+ 01101$

$A2 = 1101$   $100100$

4.  $11100010 - 1111011 : 11100010$

$A1 = 10001000$   $+ 10001001$

$A2 = 10001001$   $101101011$

#### 4. Operaciones de multiplicación:

1.  $10100111 \times 1101 :$

$10100111$

$\times 1101$

$10100111$

$101001110$

$10100111$

$100001111011$

2.  $10000101 \times 1111 :$

$10000101$

$\times 1111$

$10000101$

$10000101$

$10000101$

$10000101$

$11111001011$

3.  $11010110 \times 1011 :$

$11010110$

$\times 1011$

$11010110$

$11010110$

$110101100$

$100100110010$