

Practica 1: Conversión de números

a) $89113_{(10)}$

Binario

| 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |

$$89113_{(10)} = 10101110000011001_{(2)}$$

Hexadecimal

$$\begin{array}{cccccc} 0001 & 0101 & 1100 & 0001 & 1001 & \\ \hline 1 & 5 & C & 1 & 9 & \end{array}$$

$$89113_{(10)} = 15C19_{(16)}$$

$$\begin{array}{cccccc} 0001 & 0101 & 1100 & 0000 & 1100 & 1 \\ \hline 2 & 5 & 6 & 0 & 3 & 1 \end{array}$$

$$89113_{(10)} = 256031_{(8)}$$

(b) 5313

| | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|-----|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| Bin | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Hex | 1 | | | | 4 | | | | C | | | | 1 | | | |
| Oct | 1 | | | | 2 | | | | 3 | | | | 01 | | | |

$$5313(10) = 1010011000001(2)$$

$$5313(10) = 14C1(16)$$

$$5313(10) = 1230(8)$$

(c) 825

| | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|--|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| | 3 | | | 3 | | | 7 | | | 9 | | | |
| | 1 | | | 4 | | | 7 | | | 1 | | | |

$$825(10) = 1100111001(2)$$

$$825(10) = 339(16)$$

$$825(10) = 1471(8)$$

d) 10749

| | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 2 | | | | 9 | | | | F | | | | D | | | | |
| 2 | | | | 4 | | | | 7 | | | | 7 | | | | |
| | | | | | | | | | | | | 5 | | | | |

$$10749_{(10)} = 1010011111101_{(2)}$$

$$10749_{(10)} = 29FD_{(16)}$$

$$10749_{(10)} = 24775_{(8)}$$

e) 296681

| | | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2^{19} | 2^{18} | 2^{17} | 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 524288 | 262144 | 131072 | 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 4 | | 8 | | | 6 | | | E | | | 9 | | | | | | | | |
| 1 | | 0 | | | 3 | | | 3 | | | 5 | | | 1 | | | | | |

$$296681_{(10)} = 1001000011011101001_{(2)}$$

$$296681_{(10)} = 486E9_{(16)}$$

$$296681_{(10)} = 1103351_{(8)}$$

⑧ 2349

| 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 9 | | | | 2 | | | | D | | | |
| 4 | | | | 4 | | | | 5 | | 5 | |

$$2349_{(10)} = 100100101101_{(2)}$$

$$2349_{(10)} = 92D_{(16)}$$

$$2349_{(10)} = 4455_{(8)}$$

⑨ 92837

| 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 1 | | 6 | | A | | A | | 5 | | 5 | | 5 | | 5 | | |
| 1 | | 6 | | 5 | | 5 | | 2 | | 4 | | 5 | | 5 | | |

$$92837_{(10)} = 10110101010100101_{(2)}$$

$$92837_{(10)} = 16AA5_{(16)}$$

$$92837_{(10)} = 165245_{(8)}$$

h) 783073

| | | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2^{19} | 2^{18} | 2^{17} | 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 524288 | 262144 | 131072 | 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| B | | F | | 2 | | E | | 1 | | | | | | | | | | | |
| 2 | | 7 | | 7 | | 1 | | 3 | | 4 | | 1 | | | | | | | |

$$783073_{(10)} = 10111111001011100001_{(2)}$$

$$783073_{(10)} = BF2E1_{(16)}$$

$$783073_{(10)} = 2771341_{(8)}$$

i) 87244

| | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2^{18} | 2^{17} | 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
| 262144 | 131072 | 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 1 | | 5 | | 4 | | C | | C | | | | | | | | | | |
| 2 | | 5 | | 2 | | 3 | | 1 | | 4 | | | | | | | | |

$$87244_{(10)} = 10101010011001100_{(2)}$$

$$87244_{(10)} = 154CC_{(16)}$$

$$87244_{(10)} = 252314_{(8)}$$

j) 26267

| 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 6 | | | | 6 | | | | 9 | | B | | | | | |
| 6 | | | | 3 | | | 2 | | 3 | | 3 | | | | |

$$26267_{(10)} = 116011010011011_{(2)}$$

$$26267_{(10)} = 669B_{(16)}$$

$$26267_{(10)} = 68233_{(8)}$$

k) 50595

| 2^{16} | 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| C | | | | 5 | | | A | | 3 | | | | | | | |
| 1 | | 4 | | | 2 | | 6 | | 4 | | 3 | | | | | |

$$50595_{(10)} = 1100010110100011_{(2)}$$

$$50595_{(10)} = C5A3_{(16)}$$

$$50595_{(10)} = 192693_{(8)}$$

(L) 52263

| 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 82768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| C | | | | C | | | | 2 | | 7 | | | | | |
| 4 | | | | 6 | | | | 0 | | 4 | | 7 | | | |

$$52263_{(10)} = 1100110000100111_{(2)}$$

$$52263_{(10)} = CC27_{(16)}$$

$$52263_{(10)} = 146047_{(8)}$$

(M) 49720

| 2^{15} | 2^{14} | 2^{13} | 2^{12} | 2^{11} | 2^{10} | 2^9 | 2^8 | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |
|----------|----------|----------|----------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| C | | | | 2 | | | | 3 | | 8 | | | | | |
| 4 | | | | 1 | | | | 0 | | 7 | | 0 | | | |

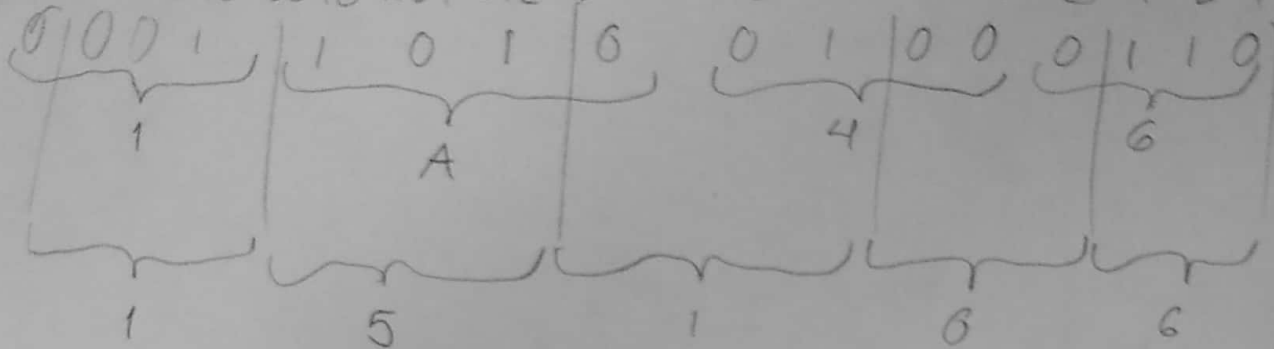
$$49720_{(10)} = 1100001000111000_{(2)}$$

$$49720_{(10)} = C238_{(16)}$$

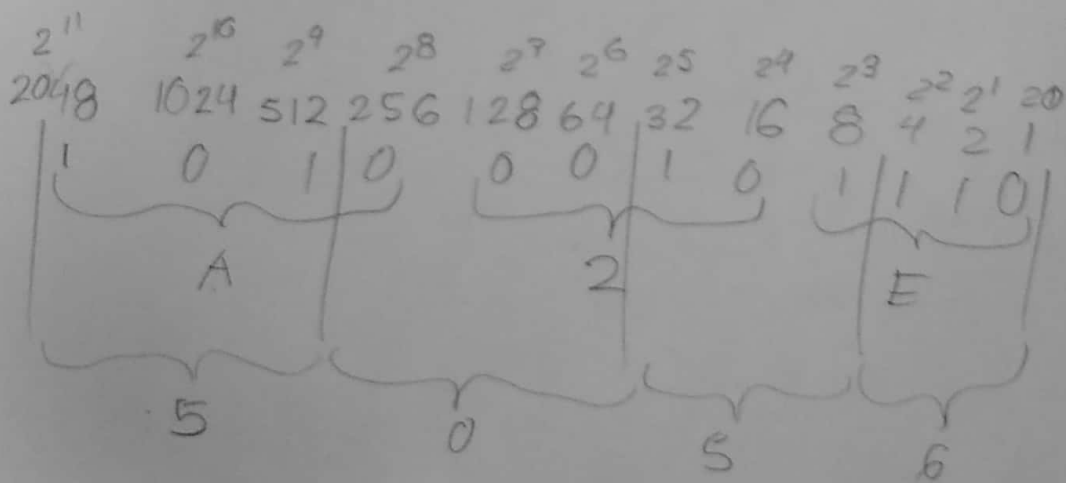
$$49720_{(10)} = 141070_{(8)}$$

h) 6726

2^{12} 2^{11} 2^{10} 2^9 2^8 2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0
4096 2048 1024 512 256 128 64 32 16 8 4 2 1



o) 2606



$$2606_{(10)} = 101000101110_{(2)}$$

$$2606_{(10)} = A2E_{(16)}$$

$$2606_{(10)} = 5056_{(8)}$$