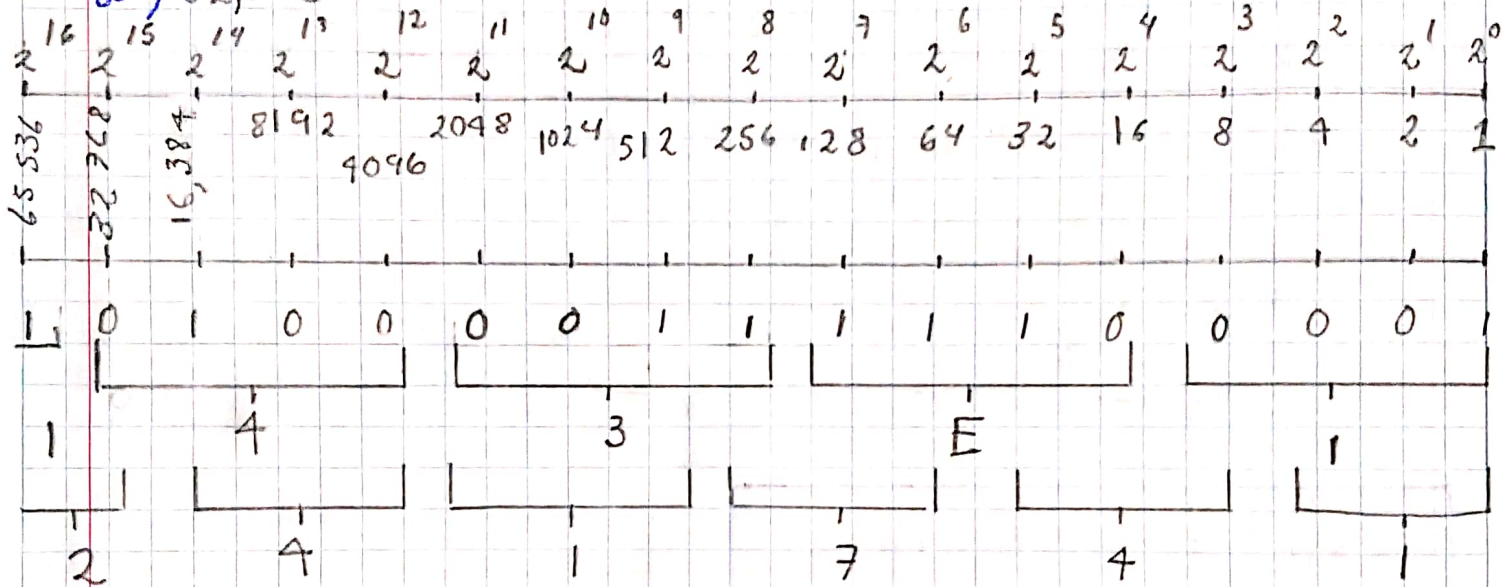


Tarea 1

Conversión de números

- Conversión de los siguientes números decimales a binario, hexadecimal y octal como se explicó en clase.

a) 82,913

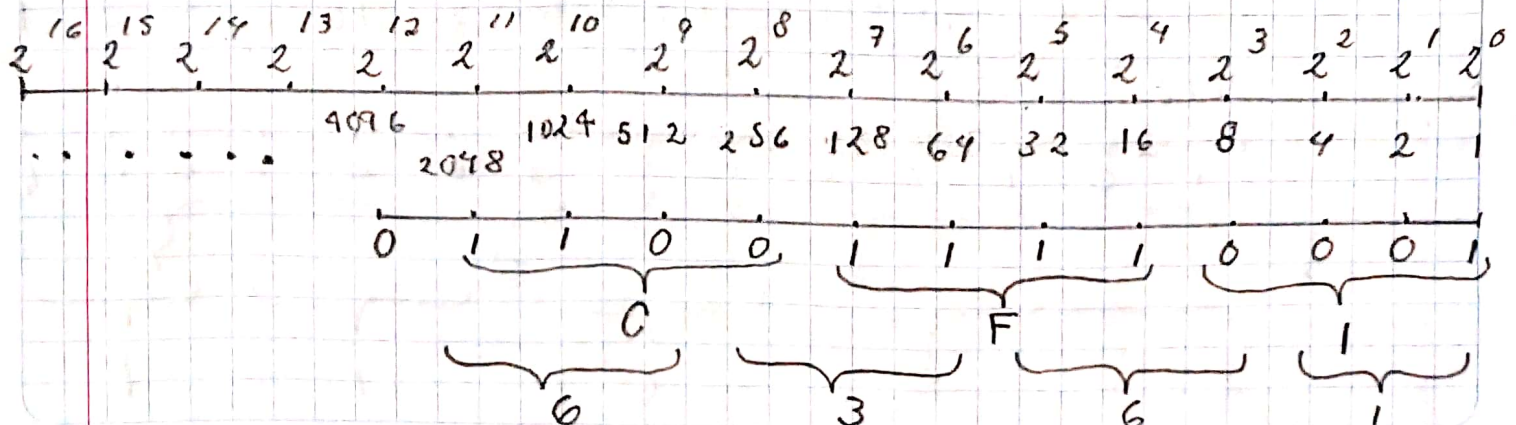


$$82,913_{10} = 1010000111100001_2$$

$$82,913_{10} = 143E1_{16}$$

$$82,913_{10} = 241741_8$$

b) 3,313



$$3313_{10} = 110011110001_2$$

$$3313_{10} = CFI_{16}$$

$$3313_{10} = 6361_8$$

c.) 482

2 ⁸	2 ⁷	2 ⁶	2 ⁵	2 ⁴	2 ³	2 ²	2 ¹	2 ⁰
256	128	64	32	16	8	4	2	1

1	1	1	1	0	0	0	1	0
1	E			2				
7		4			2			

$$482_{10} = 111100010_2$$

$$482_{10} = 1E2_{16}$$

$$482_{10} = 742_8$$

d) 10,249

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
			4096			1024	512	256	128	64	32	16	8	4	2	1

8192 2048

1	0	1	0	0	0	0	0	0	0	1	0	0	1
2		8				0				9			
2		4				0				1			

$$10,249_{10} = 24011_8$$

e.) 297,781

Handwritten binary tree diagram for Huffman coding. The root node is labeled '524288'. It branches into '262144' and '131072'. '262144' branches into '65536' and '32768'. '131072' branches into '16384' and '8192'. '65536' branches into '4096' and '2048'. '32768' branches into '1024' and '512'. '16384' branches into '256' and '128'. '8192' branches into '64' and '32'. '4096' branches into '16' and '8'. '2048' branches into '4' and '2'. '1024' branches into '1' and '1'. '256' branches into '1' and '1'. '128' branches into '1' and '1'. '64' branches into '1' and '1'. '32' branches into '1' and '1'. '16' branches into '1' and '1'. '8' branches into '1' and '1'. '4' branches into '1' and '1'. '2' branches into '1' and '1'. '1' branches into '1' and '1'. The final leaf nodes are labeled with their frequencies: 1, 0, 5, 4, 6, 5.

$$297,781,10 = 11054658$$

f.) 2347

Handwritten binary representation of 2048:

$$2^{16} \quad 2^{15} \quad 2^{14} \quad 2^{13} \quad 2^{12} \quad 2^{11} \quad 2^{10} \quad 2^9 \quad 2^8 \quad 2^7 \quad 2^6 \quad 2^5 \quad 2^4 \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0$$

Handwritten binary representation of 512:

$$1 \quad 0 \quad 0 \quad 1 \quad 0 \quad 0 \quad 1 \quad 0 \quad 1 \quad 0 \quad 1 \quad 1$$

Handwritten binary representation of 13:

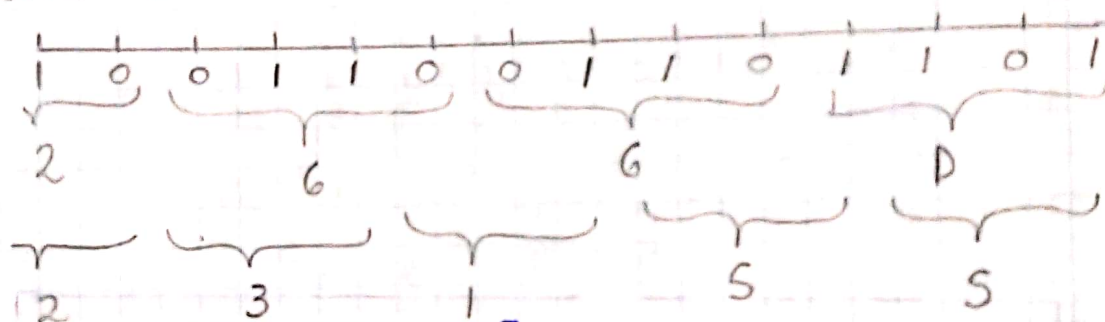
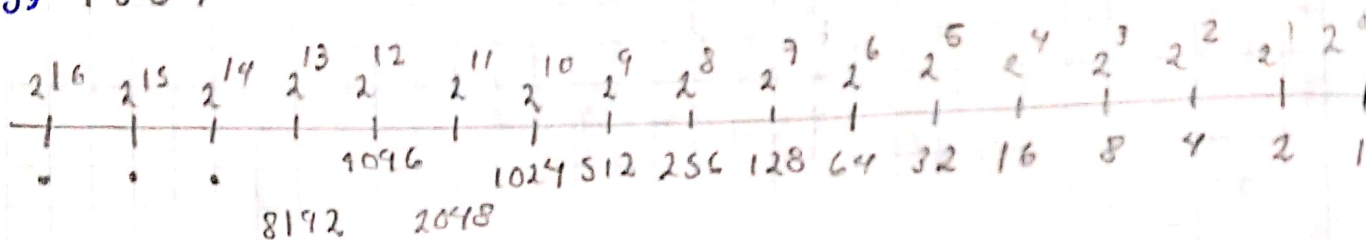
$$1 \quad 1 \quad 0 \quad 1$$

$$2347_{10} = 100100101011_2$$

$$2347_{10} = 92B_{16}$$

$$2347_{10} = 4453_8$$

g) 9837

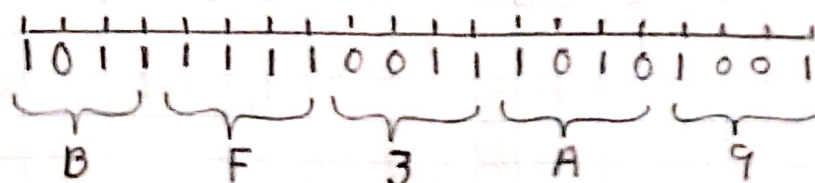
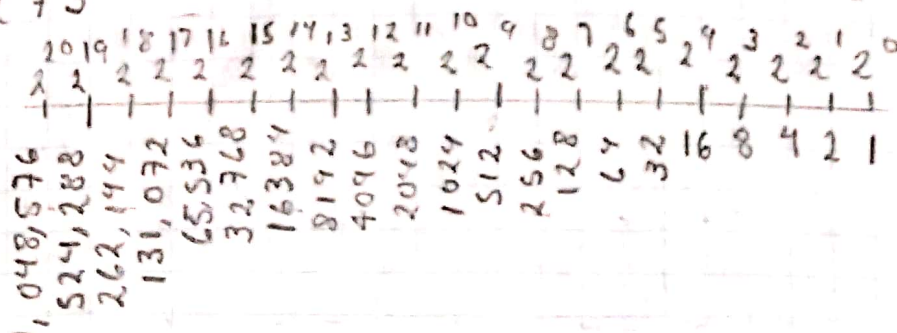


$$9837_{10} = 10011001101101_2$$

$$9837_{10} = 266D_{16}$$

$$9837_{10} = 23155_8$$

h) 783273



1011111001110101001
 2 7 7 1 6 5 1

$$783273_{10} = 1011111001110101001_2$$

$$783273_{10} = BF3A9_{16}$$

$$783273_{10} = 2771651_8$$

i) 87283

$2^{16} \quad 2^{15} \quad 2^{14} \quad 2^{13} \quad 2^{12} \quad 2^{11} \quad 2^{10} \quad 2^9 \quad 2^8 \quad 2^7 \quad 2^6 \quad 2^5 \quad 2^4 \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0$
 65,536 32,768 16,384 8192 4096 2048 1024 512 256 128 64 32 16 8 4 2 1
 10101010011110011
 1 5 4 F 3 3
 2 5 2 3 6 3

$$87283_{10} = 10101010011110011_2$$

$$87283_{10} = 154F3_{16}$$

$$87283_{10} = 252363_8$$

j) 26262

$2^{14} \quad 2^{13} \quad 2^{12} \quad 2^{11} \quad 2^{10} \quad 2^9 \quad 2^8 \quad 2^7 \quad 2^6 \quad 2^5 \quad 2^4 \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0$
 16,384 8192 4096 2048 1024 512 256 128 64 32 16 8 4 2 1
 110011010010110

$$\begin{array}{ccccccc} 1 & 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0 \\ \hline \underbrace{110}_6 & \underbrace{011}_6 & \underbrace{0100}_9 & \underbrace{1011}_6 \\ \hline \underbrace{6}_6 & \underbrace{3}_3 & \underbrace{2}_2 & \underbrace{2}_2 & \underbrace{6}_6 \end{array}$$

$$26262_{10} = 110011010010110_2$$

$$26262_{10} = 6696_{16}$$

$$26262_{10} = 63226_8$$

k) 050695

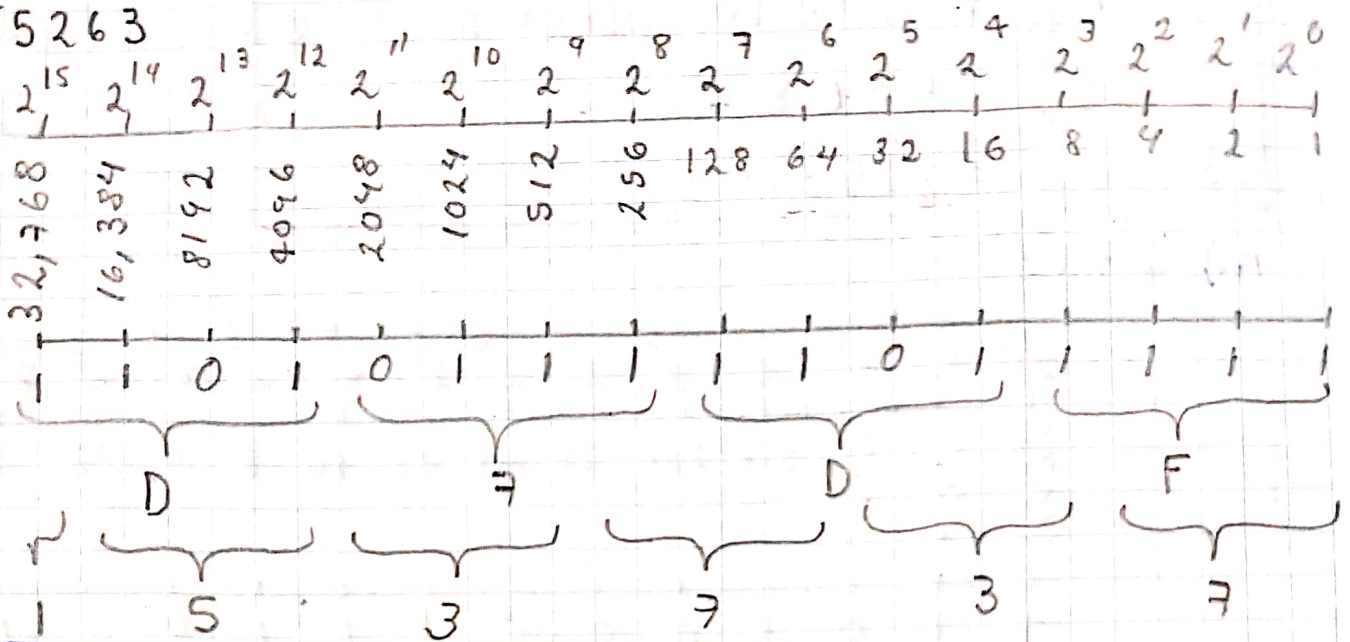
2^{15}	2^{14}	2^{13}	2^{12}	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
32768	16384	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
1	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1
C		6				0				7					
1	4	3		0		0		7							

$$50695_{10} = 1100011000000111_2$$

$$50695_{10} = C607_{16}$$

$$50695_{10} = 143007_8$$

l) 55263

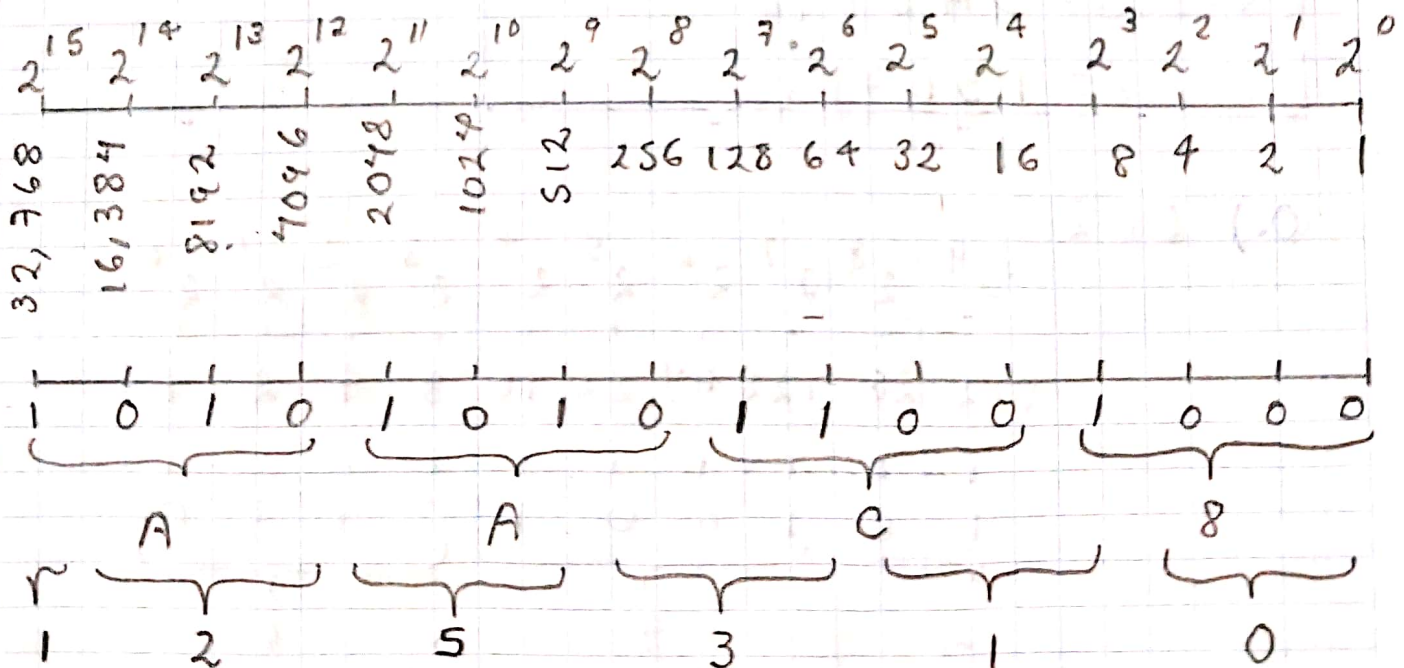


$$55263_{10} = 11010111101111_2$$

$$55263_{10} = D7DF_{16}$$

$$55263_{10} = 153737_8$$

m.) 43720



$$43720_{10} = 1010101011001000_2$$

$$43720_{10} = AAC8_{16}$$

$$43720_{10} = 125310_8$$

n.) 6713

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
1	1	0	1	0	0	0	1	1	1	0	0	1
1	A			3			9					
1	5			0			7			1		

$$6713_{10} = 1101000111001_2$$

$$6713_{10} = 1A39_{16}$$

$$6713_{10} = 15071_8$$

o.) 662

2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
512	256	128	64	32	16	8	4	2	1
1	0	1	0	0	1	0	1	1	0
2	9			6					
1	2			2			6		

$$662_{10} = 1010010110_2$$

$$662_{10} = 296_{16}$$

$$662_{10} = 1226_8$$