**GUIA 2. SISTEMA DE NUMEROS BINARIOS**

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Sena

Matematicas

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18 de octubre del 2024

**Taller**

1. Convertir los siguientes números decimales a sus equivalentes binarios:

a. 6410 -> 64 = 10000002

b. 10010 -> 64+32+4 = 11001002

c. 11110 -> 64+32+8+4+2+1 = 11011112

d. 14510 -> 128+16+1 = 100100012

e. 25510 -> 128+64+32+16+8+4+2+1 = 111111112

f. 50010 -> 256+128+64+32+16+4 = 1111101002

g. 66810 -> 512+128+16+8+4 = 10100111002

h. 100010 -> 512+256+128+64+32+8 = 11111010002

i. 3276710 -> 16384+8192+4096+2048+1024+512+256+128+64+32+16+8+4+2+1 = 1111111111111112

j. 6553610 -> 65536 = 100000000000000002

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| BB | 217 | 216 | 215 | 214 | 213 | 212 | 211 | 210 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 |
| D | 131072 | 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| a. |  |  |  |  |  |  |  |  |  |  |  | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| b. |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| c. |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| d. |  |  |  |  |  |  |  |  |  |  | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| e. |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| f. |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| g. |  |  |  |  |  |  |  |  | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| h. |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| i. |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| j. |  | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1. Convertir los siguientes números binarios a sus equivalentes decimales:

a. 001101102 ->32+16+4+2=54

b. 100001012 ->128+4+1=133

c. 0111002 ->16+8+4=28

d. 1001111002 ->256+32+16+8+4=316

e. 1010102 ->32+8+2=42

f. 1111111112 ->256+128+64+32+16+8+4+2+1=511

g. 1001000000012 ->2048+256+1=2305

h. 1011110012 ->256+64+32+16+8+1=377

i. 11100012 ->64+32+16+1=113

j. 111100011112 -> 1024 + 512 + 256 + 128 + 8 + 4 + 2 + 1=1935

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| BB | 217 | 216 | 215 | 214 | 213 | 212 | 211 | 210 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 |
| D | 131072 | 65536 | 32768 | 16384 | 8192 | 4096 | 2048 | 1024 | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| a. |  |  |  |  |  |  |  |  |  |  | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| b. |  |  |  |  |  |  |  |  |  |  | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| c. |  |  |  |  |  |  |  |  |  |  |  |  | 0 | 1 | 1 | 1 | 0 | 0 |
| d. |  |  |  |  |  |  |  |  |  | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| e. |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 0 | 1 | 0 | 1 | 0 |
| f. |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| g. |  |  |  |  |  |  | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| h. |  |  |  |  |  |  |  |  |  | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| i. |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| j. |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |