

Ejercicios conversión - AD1423940, Daniel De Luna.

A.

1. 1101010000101

2	6	7	8	9	}	53	}	0
	3	3	9	4				
	1	6	9	7				
		8	4	0				
		4	2	4				
		2	1	2				
		1	0	6				

1101010000101

1	5	2	0	5
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2. 101010110011011000010

2	5	6	2	3	4	9	0	}	87867	}	1372	}	10
	2	8	1	7	4	5							
	1	4	0	5	8	7							
	7	0	2	9	3	6							
	3	5	1	1	1	8							

4	3	9	3	3	}	686	}	5
2	1	9	6	6				
1	0	9	4	3				
6	4	9	1					
2	5	1	1	8				

$$\begin{array}{c|c|c|c} 175 & 734 & 2745 & \begin{pmatrix} 42 \\ 21 \end{pmatrix} \end{array}$$

$$\begin{array}{c} 2 \quad 5 \quad 3 \quad 4 \quad 7 \quad 3 \quad 0 \quad 2 \\ 10/10/011/100/111/011/000/010 \end{array} \rightsquigarrow \underline{25347302}$$

$$\begin{array}{c} 3. \quad 101101110 \mid 000000 \\ \quad \quad 2 \mid \begin{array}{c} 23456 \\ 11728 \\ 5864 \\ 2932 \\ 1466 \\ 733 \end{array} \end{array} \left\{ \begin{array}{c} 366 \\ 183 \\ 91 \\ 45 \\ 22 \\ 11 \end{array} \right\} \begin{array}{c} 5 \\ 2 \\ 1 \\ 0 \end{array} \rightsquigarrow \underline{101101110 \mid 000000}$$

$$\begin{array}{c} 4. \quad 1000110111111 \\ \quad \quad 2 \mid \begin{array}{c} 9087 \\ 4543 \\ 2271 \\ \dots \end{array} \end{array} \left\{ \begin{array}{c} 141 \\ 70 \\ 35 \\ 17 \end{array} \right\} \begin{array}{c} 2 \\ 1 \\ 0 \end{array} \rightsquigarrow \underline{1000110111111}$$

$$\begin{pmatrix} 1133 \\ 567 \\ 283 \end{pmatrix} \quad \left| \begin{pmatrix} 17 \\ 8 \\ 4 \end{pmatrix} \right.$$

5.

$$4 \overline{) 1121} \rightsquigarrow \begin{array}{r} 1121 \\ 4 \overline{) 345} \\ 86 \\ 21 \\ 5 \\ 1 \\ 0 \end{array}$$

6.

$$0.86510 \rightsquigarrow 2 \overline{) 0} \rightsquigarrow 0. \dots$$

$$\bullet 86510 \times 2 = \underline{1}.73020$$

$$\bullet 73020 \times 2 = \underline{1}.46040$$

$$\bullet 46040 \times 2 = \underline{0}.92080$$

$$\bullet 92080 \times 2 = \underline{1}.84160$$

$$\begin{aligned}
 & \cdot 84160 \times 2 = \underline{1} . 68320 \\
 & \cdot 68320 \times 2 = \underline{1} . 36640 \\
 & \cdot 36640 \times 2 = \underline{0} . 73280
 \end{aligned}$$

etc ...

entonces, $0.86510 = 0.110110\dots$

7.

$$\begin{array}{r}
 111110 \\
 2 \overline{) 126} \\
 \underline{63} \\
 31 \\
 \underline{15}
 \end{array}
 \left\{
 \begin{array}{l}
 7 \\
 3 \\
 1 \\
 0
 \end{array}
 \right.$$

$$\begin{aligned}
 0.675 \times 2 &= 1.350 \\
 0.350 \times 2 &= 0.700 \\
 0.700 \times 2 &= 1.400 \\
 0.400 \times 2 &= 0.800 \\
 0.800 \times 2 &= 1.600 \\
 0.600 \times 2 &= 1.200 \\
 0.200 \times 2 &= 0.400 \\
 0.400 \times 2 &= 0.800
 \end{aligned}$$

etc ...

resultado: 111110.10101100

B.
1. $3^3 4^2 1^2 2^0$ is a base 3

$$\left. \begin{array}{l} 3 \cdot 5^3 = 375 \\ 4 \cdot 5^2 = 100 \\ 1 \cdot 5^1 = 5 \\ 2 \cdot 5^0 = 2 \end{array} \right\} \underline{482}$$

$$\begin{array}{r} 122212 \rightarrow 122212_3 \\ 3 \overline{) 482} \\ \underline{160} \\ 53 \\ \underline{17} \\ 5 \\ \underline{1} \\ 1 \dots \end{array}$$

2. $4^3 2^2 1^2 0$ is a base 7

$$\left. \begin{array}{l} 1 \cdot 3^4 = 81 \\ 2 \cdot 3^3 = 54 \\ 2 \cdot 3^2 = 18 \\ 2 \cdot 3^1 = 6 \\ 1 \cdot 3^0 = 1 \end{array} \right\} 160$$

$$\begin{array}{r} 316 \rightarrow 316_7 \\ 7 \overline{) 160} \\ \underline{22} \\ 3 \\ \underline{0} \end{array}$$

3. 6533_7 a base 9

$$\left. \begin{array}{l} 6 \cdot 7^3 = 2058 \\ 5 \cdot 7^2 = 245 \\ 3 \cdot 7^1 = 21 \\ 3 \cdot 7^0 = 3 \end{array} \right\} 2327$$

$$\begin{array}{r} 3165 \rightarrow 3165_9 \\ 9 \overline{) 2327} \\ \underline{258} \\ 28 \\ \underline{3} \\ 0 \end{array}$$

C.

2.

$$\begin{array}{cccccccccccccccc} 17 & 16 & 15 & 14 & 13 & 12 & 11 & 10 & 9 & 8 & 7 & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\ 1 & 0 & 0 & 1 & 1 & 0 & 1 & 0 & 1 & 1 & 1 & 0 & 1 & 1 & 0 & & & \\ 10011010101110110 & = & 465372_8 & \text{ y } & 158454_{10} \end{array}$$

$$\left. \begin{array}{l} 1 \cdot 2^{17} = 131072 \\ 1 \cdot 2^{14} = 16384 \\ 1 \cdot 2^{13} = 8192 \\ 1 \cdot 2^{11} = 2048 \\ 1 \cdot 2^9 = 512 \\ 1 \cdot 2^7 = 128 \end{array} \right\}$$

$$\begin{array}{r} 158454_{10} \\ \hline 465372 \end{array}$$

$$\begin{aligned}
 1 \cdot 2^6 &= 64 \\
 1 \cdot 2^5 &= 32 \\
 1 \cdot 2^4 &= 16 \\
 1 \cdot 2^2 &= 4 \\
 1 \cdot 2^1 &= 2
 \end{aligned}$$

$$\begin{array}{r}
 1158454 \\
 19807 \\
 2475 \\
 309 \\
 38 \\
 4 \\
 0
 \end{array}$$

$$2 \cdot 1|3|3|4|2|6_8 = \underline{5B896_{16}}$$

$$\begin{aligned}
 1 &= 001 \\
 3 &= 011 \\
 3 &= 011 \\
 4 &= 100 \\
 2 &= 010 \\
 2 &= 010 \\
 6 &= 110
 \end{aligned}$$

$$\begin{array}{cccccc}
 & 5 & B & 8 & 9 & 6 \\
 0 & | & | & | & | & | \\
 0 & 0 & 1 & 0 & 1 & 1 & 0 & 0 & 0 & 1 & 0 & 0 & 1 & 0 & 1 & 1 & 0
 \end{array}$$

$$3. \quad A12FFD69_{16} = 24113776551_8 \quad A$$

$$\left. \begin{array}{l} A = 1010 \\ 1 = 0001 \\ 2 = 0010 \\ F = 1111 \\ F = 1111 \\ D = 1101 \\ 6 = 0110 \\ 9 = 1001 \end{array} \right\}$$

$$\begin{array}{cccccccccccc} 2 & 4 & 1 & 1 & 3 & 7 & 7 & 6 & 5 & 5 & 1 \\ 10 & 100 & 001 & 001 & 011 & 111 & 111 & 110 & 101 & 101 & 001 \end{array}$$

$$4 \quad \begin{array}{cccccc} 1 & 1 & 1 & 1 & 1 & 1 \\ 10101010101 & = & 111111_4 \end{array}$$

$$\begin{array}{cccc} 2 & 5 & 2 & 5 \\ 10101010101 & = & 2525_8 \end{array}$$

$$\begin{array}{ccc} 5 & 5 & 5 \\ 10101010101 & = & 555_{16} \end{array}$$