ADI – 2013/1º GABARITO

4) a) $(1110.011)_{10} = (10001010110.000000101101\ldots)_2$

$0.011 \times 2 = 0.022 \rightarrow a_{-1} = 0$

$0.022 \times 2 = 0.044 \rightarrow a_{-2} = 0$

$0.044 \times 2 = 0.088 \rightarrow a_{-3} = 0$

$0.088 \times 2 = 0.176 \rightarrow a_{-4} = 0$

$0.176 \times 2 = 0.352 \rightarrow a_{-5} = 0$

$0.352 \times 2 = 0.704 \rightarrow a_{-6} = 0$

$0.704 \times 2 = 1.408 \rightarrow a_{-7} = 1$

$0.408 \times 2 = 0.816 \rightarrow a_{-8} = 0$

$0.816 \times 2 = 1.632 \rightarrow a_{-9} = 1$

$0.632 \times 2 = 1.264 \rightarrow a_{-10} = 1$

$0.264 \times 2 = 0.528 \rightarrow a_{-11} = 0$

$0.528 \times 2 = 1.056 \rightarrow a_{-12} = 1$

$= (101112.000231\ldots)_4$

b) $(8716573.0408)_9 =$

$= (2221012012210.00110022)_3$

c) $(5053450)_9 = (13341330)_6$

$5053450 \div 6 = 753523$, resto 0

$753523 \div 6 = 123533$, resto 3

$123533 \div 6 = 18080$, resto 3

$18080 \div 6 = 2757$, resto 3

$2757 \div 6 = 424$, resto 1

$424 \div 6 = 63$, resto 4

$63 \div 6 = 10$, resto 3

$10 \div 6 = 1$, resto 3

$1 \div 6 = 0$, resto 1

d) $(A9CB5E.0FD7)_{16} =$

$= (101010011100101101011110.0000111111010111)_2$

$= (52345536.037534)_8$

e) $(33032210.203312)_4 =$

$= (1111001110100100.100011110110)_2$

$= (171644.4366\ldots)_8$

5)

a) $(ADE8F.B9B)_{16} + (9ECD.CD9)_{16} = (B7D5D.874)_{16}$

b) $(765734.6726)_8 + (756604.5474)_8 = (1744541.4422)_8$

c) $(1000B2.0A)_{16} - (FCDAB.ECB)_{16} = (3306.1D5)_{16}$

d) $(1111010111.1011)_2 + (1001001111.1101)_2 = (11000100111.1000)_2$

e) $(101000101.1011)_2 - (10011101.11011)_2 = (10100111.11011)_2$

6)

$X = -(74)_{16} = -(116)_{10} = -(01110100)_2$

$y = +(1D)_{16} = +(29)_{10} = +(00011101)_2$

a) $X + y \rightarrow$

$$\begin{array}{r} 10001100 \\ +\ 00011101 \\ \hline 10101001 \end{array}$$

(X em comp à 2)

$10101001 = -(01010111)_2 = -(87)_{10} = -(57)_{16}$

b) $X - y \rightarrow$

$$\begin{array}{r} 10001100 \\ +\ 11100011 \\ \hline 101101111 \end{array}$$

$= \text{DARIA} -(10010001)_2 = -(145)_{10} = -(91)_{16}$

OVERFLOW!

c) $y - X \rightarrow$

$$\begin{array}{r} 00011101 \\ +\ 01110100 \\ \hline 10010001 \end{array}$$

$= \text{DARIA} +(10010001)_2 = +(145)_{10} = +(91)_{16}$

OVERFLOW!

d) $X \text{ DIV } y \rightarrow -(01110100 \,|\, 11101$

$000 \quad 100 = -(4)_{10} = -(4)_{16}$