

① Realize as adições:

- (i) $100101_2 + 1011_2$
- (II) $10111_2 + 1101_2$
- (III) $110011101_2 + 101110110_2$
- (IV) $110011110_2 + 11011111_2$
- (V) $1011101_2 + 1111001_2$
- (VI) $1110000101_2 + 1000011111_2$
- (VII) $7215_8 + 317_8$
- (VIII) $1772_8 + 26_8$
- (IX) $31752_8 + 6735_8$
- (X) $37742_8 + 26573_8$
- (XI) $3645_8 + 2764_8$
- (XII) $3251_8 + 2167_8$
- (XIII) $217_8 + 173_8$
- (XIV) $1D8_{16} + 2A_{16}$
- (XV) $1BFE6 + 128$
- (XVI) $2A4BEF + 9C829$
- (XVII) $2AC79 + B7EEC$
- (XVIII) $2748E + FA7B5$

$$\begin{array}{r} \text{(i)} \quad \begin{array}{r} 100101 \\ + 1011 \\ \hline 110000 // \end{array} \quad \text{(ii)} \quad \begin{array}{r} 10111 \\ + 1101 \\ \hline 100100 // \end{array} \quad \text{(iii)} \quad \begin{array}{r} 1100111101 \\ + 101110110 \\ \hline 10010110011 // \end{array} \end{array}$$

$$\begin{array}{r} \text{(iv)} \quad \begin{array}{r} 110011110 \\ + 11011111 \\ \hline 1001111101 // \end{array} \quad \text{(v)} \quad \begin{array}{r} 1011101 \\ + 1111001 \\ \hline 11010110 // \end{array} \quad \text{(vi)} \quad \begin{array}{r} 1110000101 \\ + 1000011111 \\ \hline 10110100100 // \end{array} \end{array}$$

$$\begin{array}{r} \text{(vii)} \quad \begin{array}{r} 7215 \\ + 317 \\ \hline 7534 // \end{array} \quad \text{(viii)} \quad \begin{array}{r} 1772 \\ + 26 \\ \hline 2020 // \end{array} \quad \text{(ix)} \quad \begin{array}{r} 31752 \\ + 6735 \\ \hline 40707 // \end{array} \quad \text{(x)} \quad \begin{array}{r} 37742 \\ + 26573 \\ \hline 66535 // \end{array} \end{array}$$

$$\begin{array}{r} \text{(xi)} \quad \begin{array}{r} 3645 \\ + 2764 \\ \hline 6631 // \end{array} \quad \text{(xii)} \quad \begin{array}{r} 3251 \\ + 2167 \\ \hline 5440 // \end{array} \quad \text{(xiii)} \quad \begin{array}{r} 217 \\ + 173 \\ \hline 412 // \end{array} \quad \text{(xiv)} \quad \begin{array}{r} 1D8 \\ + 2A \\ \hline 202 // \end{array} \end{array}$$

$$\begin{array}{r} \text{(xv)} \quad \begin{array}{r} 1BFE6 \\ + 128 \\ \hline 1D1E // \end{array} \quad \text{(xvi)} \quad \begin{array}{r} 2A4BEF \\ + 9C829 \\ \hline 34141D // \end{array} \quad \text{(xvii)} \quad \begin{array}{r} 2AC79 \\ + B7EEC \\ \hline E3B65 // \end{array} \quad \text{(xviii)} \quad \begin{array}{r} 2748E \\ + FA7B5 \\ \hline 121C43 // \end{array} \end{array}$$

② Efetue as seguintes operações e diga o resultado na base octal

(i) $FEFE_{16} + 1110100110001110_2$

(ii) $384_{10} + 512_{10}$

(iii) $10011101_2 + 376_8$

(iv) $3E54_{16} + 1257_8$

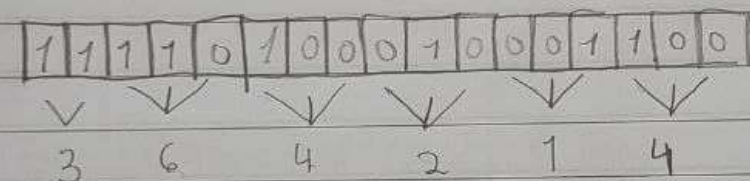
(v) $10110110101_2 + 2FE_{16}$

(vi) $1374_{10} + 1101101110111_2$

(i) $FEFE_{16} = 1111111011111110_2$

$$\begin{array}{r} 1111111011111110 \\ + 1110100110001110 \\ \hline 11110100010001100 \end{array}$$

R: 364214



(ii) $384 = 384 \div 2 \Rightarrow 1100000000_2$

192

96

48

24

12

6

3

1

$512 = 10100010010_2$

$$\begin{array}{r}
 \textcircled{2} \text{ (ii) } 1100000000 \\
 + 16100010010 \\
 \hline
 11010010010
 \end{array}
 \quad \rightarrow \quad
 \begin{array}{|c|c|c|c|c|c|c|c|c|c|}
 \hline
 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 & 0 & 1 & 0 \\
 \hline
 \end{array}$$

$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$
 $3 \quad 2 \quad 2 \quad 2$

$$\Rightarrow \textcircled{3222} //$$

$$\begin{array}{r}
 \text{(iii) } 10011101 + 376 \\
 \quad \quad \quad \downarrow \downarrow \downarrow \\
 \quad \quad \quad 2 \quad 3 \quad 5
 \end{array}$$

$$\begin{array}{r}
 \quad \quad 11 \\
 \Rightarrow 376 \\
 + 235 \\
 \hline
 \textcircled{633} //
 \end{array}$$

$$\begin{array}{r}
 \text{(iv) } 3E54 = 11111001010100 \\
 \quad \quad \quad \downarrow \downarrow \downarrow \downarrow \downarrow \\
 \quad \quad \quad 3 \quad 7 \quad 1 \quad 2 \quad 4
 \end{array}$$

$$\begin{array}{r}
 \quad \quad 1 \quad 11 \\
 \Rightarrow 37124 \\
 + 1257 \\
 \hline
 \underline{40403} //
 \end{array}$$

$$\textcircled{2} \text{ (v) } 10110110101 + 2FE \rightarrow 1011111110$$

$$\begin{array}{cccc} \checkmark & \checkmark & \checkmark & \checkmark \\ 2 & 6 & 6 & 5 \end{array} \quad \begin{array}{cccc} 1 & \checkmark & \checkmark & \checkmark \\ 1 & 3 & 4 & 6 \end{array}$$

$$\begin{array}{r} 111 \\ \Rightarrow 2665 \\ + 1376 \\ \hline 4263 // \end{array}$$

$$\text{(vi) } 1374 \mid \Delta$$

$$\begin{array}{r} \textcircled{6} \quad 171 \mid \Delta \quad \sim 72536 \\ \textcircled{3} \quad 21 \mid \Delta \\ \quad \quad 5 \quad 2 \end{array}$$

$$11011011110111$$

$$\begin{array}{ccccccc} \checkmark & \checkmark & \checkmark & \checkmark & \checkmark & & \\ 3 & 3 & 3 & 6 & 7 & & \end{array}$$

$$\begin{array}{r} 111 \\ \Rightarrow 33367 \\ + 2536 \\ \hline 36125 // \end{array}$$

③ Realize as subtrações

(I) $10010 - 11101$

(II) $10001101000 - 101101101$

(III) $11001000010 - 111111111$

(IV) $110000001101 - 10110011101$

(V) $1001001 - 111100$

(VI) $1110000101 - 10011111$

(VII) $2351 - 1763$

(VIII) $37425 - 14766$

(IX) $31752 - 6735$

(X) $37742 - 26573$

(XI) $7215 - 317$

(XII) $3251 - 2167$

(XIII) $217 - 173$

(XIV) $64B2E - 27EBA$

(XV) $43DAB - 3E FFA$

(XVI) $35A3 - 2FEC$

(XVII) $B7EEC - 2AC79$

(XVIII) $FA7B5 - 2748E$

(i) $10010 \rightarrow 1 \cdot 2^4 + 1 \cdot 2^1 \rightarrow 18$

$-11101 \rightarrow 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^0 \rightarrow 29$

$-11 \Rightarrow (-1011)$

(ii) $10001101000 \rightarrow 1128$

$101101101 \rightarrow 365$

$- = 763 \Rightarrow 1011111011$

$$\textcircled{3} \text{ (III) } 11001000010 \rightarrow 1602 \quad) \\ 111111111 \rightarrow 1023 \quad) - = 579 \Rightarrow 1001000011 //$$

$$\text{(IV) } 110000001101 \rightarrow 3085 \quad) \\ 1010011101 \rightarrow 1437 \quad) - = 1648 \Rightarrow 11001110000 //$$

$$\text{(V) } 1001001 \rightarrow 73 \quad) \\ 111100 \rightarrow 60 \quad) - = 13 \Rightarrow 1101 //$$

$$\text{(VI) } 1110000101 \rightarrow 901 \quad) \\ 1001111 \rightarrow 159 \quad) - = 742 \Rightarrow 1011100110 //$$

$$\text{(VII) } 2351_3 \rightarrow (1257)_{10} \quad) \\ - 1763_3 \rightarrow (1011)_{10} \quad) - = 246_{10} \Rightarrow 366_3 //$$

$$\text{(VIII) } 37425_3 \rightarrow 16149_{10} \quad) \\ 14766_3 \rightarrow 6696_{10} \quad) - = 9503_{10} \Rightarrow 22437_3 //$$

$$\text{(IX) } 31752_3 \rightarrow 13290_{10} \quad) \\ 6735_3 \rightarrow 3597_{10} \quad) - = 9741_{10} \Rightarrow 23015_3 //$$

$$\textcircled{3} \text{ (X)} \begin{array}{l} 37742 \rightarrow 16354 \\ 26573 \rightarrow 11643 \end{array} \Bigg) - = 4.711 \Rightarrow 11147$$

$$\text{(XI)} \begin{array}{l} 7215 \rightarrow 3725 \\ 317 \rightarrow 207 \end{array} \Bigg) - = 3.518 \Rightarrow 6676$$

$$\text{(XII)} \begin{array}{l} 3251 \rightarrow 1705 \\ 2167 \rightarrow 1143 \end{array} \Bigg) - = 562 \Rightarrow 1062$$

$$\text{(XIII)} \begin{array}{l} 217 \rightarrow 143 \\ 173 \rightarrow 123 \end{array} \Bigg) - = 20 \Rightarrow 24$$

$$\text{(XIV)} \begin{array}{l} 64B2E \rightarrow 412462 \\ 27EBA \rightarrow 163514 \end{array} \Bigg) - = 248948 \Rightarrow 3CC74$$

$$\text{(XV)} \begin{array}{l} 93DAB \rightarrow 277931 \\ 3EPPA \rightarrow 258042 \end{array} \Bigg) - = 19889 \Rightarrow 4DB1$$

$$\text{(XVI)} \begin{array}{l} 35A3 \rightarrow 13731 \\ 2FEC \rightarrow 12263 \end{array} \Bigg) - = 1.463 \Rightarrow 5B7$$

$$\text{(XVII)} \begin{array}{l} B7EEC \rightarrow 753388 \\ 2AC79 \rightarrow 175225 \end{array} \Bigg) - = 578163 \Rightarrow 8D273$$

$$\text{(XVIII)} \begin{array}{l} FA7B5 \rightarrow 1025973 \\ 2748E \rightarrow 160910 \end{array} \Bigg) - = 865063 \Rightarrow D3327$$