

# Binary calculations

1)  $y = 37$   
 2)  $x = 78$   
 3)  $37_{10} \rightarrow ?_2$      $37_{10} \rightarrow 100101_2$   

$$\begin{array}{r} 37 \div 2 \\ \underline{36} \quad 18 \div 2 \\ \underline{18} \quad 9 \div 2 \\ \underline{9} \quad 4 \div 2 \\ \underline{4} \quad 2 \div 2 \\ \underline{2} \quad 1 \div 2 \\ \underline{1} \end{array}$$
  
 4)  $78_{10} \rightarrow ?_2$      $78_{10} \rightarrow 1001110_2$   

$$\begin{array}{r} 78 \div 2 \\ \underline{78} \quad 39 \div 2 \\ \underline{39} \quad 19 \div 2 \\ \underline{19} \quad 9 \div 2 \\ \underline{9} \quad 4 \div 2 \\ \underline{4} \quad 2 \div 2 \\ \underline{2} \quad 1 \div 2 \\ \underline{1} \end{array}$$
  
 5)  $x + y \rightarrow ?$      $1110011_2$   

$$\begin{array}{r} 1001110 \\ + 0100101 \\ \hline 1110011 \end{array}$$
  
 6)  $x - y \rightarrow ?$      $0101001_2$   

$$\begin{array}{r} 1001110 \\ - 0100101 \\ \hline 0101001 \end{array}$$

7)  $x : y \rightarrow 10_2$

$$\begin{array}{r} 1001110 \overline{) 100101} \\ \underline{100101} \quad 10 \\ 0000100 \end{array}$$

8)  $x \cdot y \rightarrow 101101000110_2$

$$\begin{array}{r} \phantom{x} 1001110 \\ \times 100101 \\ \hline + \phantom{000} 100111 \\ + \phantom{0000} 100111 \\ + \phantom{00000} 100111 \\ \hline 101101000110 \end{array}$$

9)  $k = 74 =$

10)  $74_{10} \rightarrow ?_{16}$      $74_{10} \rightarrow 4A$

$$\begin{array}{r} 74 \div 16 \\ \underline{64} \quad 4 \\ 10 \end{array}$$

Oemara:  $10 \Rightarrow A$