

Aufgaben zum Binärsystem: - Lösungen

1 a) $7 = 111$; $37 = 100101$; $77 = 1001101$
 $255 = 11111111$

b) $1010 = 10$; $1111'0000 = 240$; $A7 = 167$; $FF = 255$

c) $7 = 0x07$; $15 = 0x0F$; $172 = 0xAC$; $220 = 0xDC$

2 a)
$$\begin{array}{r} 11 \text{ (3)} \\ 10 \text{ (2)} \\ \hline 101 \text{ (5)} \end{array}$$

b)
$$\begin{array}{r} 101 \text{ (5)} \\ 110 \text{ (6)} \\ \hline 1011 \text{ (11)} \end{array}$$

c)
$$\begin{array}{r} 0110 \text{ (6)} \\ 1001 \text{ (9)} \\ \hline 1111 \text{ (15)} \end{array}$$

d)
$$\begin{array}{r} 1111 \text{ (15)} \\ 1111 \text{ (15)} \\ \hline 11110 \text{ (30)} \end{array}$$

3) $07:20:40$

4 a)
$$\begin{array}{r} 42 = 0010'1010 \\ + 1101'1111 \leftarrow \text{inv.} \\ \hline 110000'1001 \text{ (9)} \checkmark \end{array}$$

b)
$$\begin{array}{r} -29 = 0001'1101 \leftarrow \text{inv.} \\ 1110'0010 \leftarrow +1 \\ \hline (-29) \quad 1110'0011 \\ (-11) + 1111'0101 \leftarrow \text{inv.} \\ \hline 11101'1000 \xrightarrow{\text{inv.}} 0010'0111 \xrightarrow{+1} 0010'1000 \text{ (40)} \checkmark \end{array}$$

c)
$$\begin{array}{r} 129 = 1000'0001 \\ + 0111'1110 \leftarrow \text{inv.} \\ \hline 1111'1111 \xrightarrow{\text{inv.}} 0000'0000 \xrightarrow{+1} 0000'0001 \text{ (1)} \checkmark \end{array}$$