

ZAHLENSYSTEME - LÖSUNG

①

2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
128	64	32	16	8	4	2	1

c) $1 \ 1 \ 0 \ 1 \ 1 \ 0 \ 1 \ 0_2$

$$128 + 64 + 16 + 8 + 2 = 218_{10}$$

f) $1 \ 1 \ 1 \ 1_2$

$$8 + 4 + 2 + 1 = 15_{10}$$

g) $1 \ 0 \ 0 \ 1_2 = 9_{10}$

h) $1 \ 0 \ 1 \ 0 \ 1 \ 0_2 = 42_{10}$

i) $1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0_2 = 64_{10}$

j) $1 \ 1 \ 1 \ 1 \ 1 \ 1_2 = 63_{10}$

16^5	16^4	16^3	16^2	16^1	16^0
1.048.576	65.536	4096	256	16	1

a) $4 \ 8 \ A \ D_{16}$
 $= 4 \cdot 16^3 + 8 \cdot 16^2 + 10 \cdot 16^1 + 13 \cdot 16^0 = 18.608_{10}$

b) $1 \ 2 \ 3 \ 4 \ A \ B_{16}$
 $= 1 \cdot 16^5 + 2 \cdot 16^4 + 3 \cdot 16^3 + 4 \cdot 16^2 + 10 \cdot 16^1 + 11 \cdot 16^0 = 1.193.131_{10}$

c) $F \ F \ 0 \ 0 \ 3 \ 3_{16}$
 $= 15 \cdot 16^5 + 15 \cdot 16^4 + 3 \cdot 16^1 + 3 \cdot 16^0 = 16.711.731_{10}$

d) $1 \ 1 \ 0 \ 1 \ 1 \ 0_{16} = 1.114.384_{10}$

②

2^{12}	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
16384	8192	4096	2048	1024	512	256	128	64	32	16	8	4

a) $113 = 1 \ 1 \ 0 \ 1_2$

b) $127 = 0 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1$

c) $128 = 1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$

d) $1024 = 1 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0$

e) $2016 = 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 0 \ 0 \ 0$

$$2016 - 1024 = 992$$

$$992 - 512 = 480$$

$$480 - 256 = 224$$

$$224 - 128 = 96$$

$$96 - 64 = 32$$

$$32 - 32 = 0$$

f) $24.123 = 1 \ 0 \ 1 \ 1 \ 1 \ 1 \ 0 \ 0 \ 0 \ 1 \ 1 \ 1 \ 0 \ 1 \ 1_2$

g) $168.245 = 1 \ 0 \ 1 \ 0 \ 0 \ 1 \ 0 \ 0 \ 0 \ 1 \ 0 \ 0 \ 1 \ 1 \ 0 \ 1 \ 0 \ 1_2$

ergänzt

③ a) $325 = 256 + \dots = 2^8 + \dots \rightarrow 9 \text{ Stellen}$ ④ 5. Aufgabenblatt 2

b) $1501 = 1024 + \dots = 2^{10} + \dots \rightarrow 11 \text{ Stellen}$ ⑤ "

c) $384 = 256 + \dots = 16^2 + \dots \rightarrow 3 \text{ Stellen}$ ⑥ a) 11001100

d) $3840 < 4096_{16^3} \rightarrow 3 \text{ Stellen}$ $+ 101101$

⑥ a) $498_{10} = 1F2_{16}$ ⑦ 10011001

b) $5096_{10} = 13E8_{16}$ $+ 1100011$

c) $255_{10} = FF_{16}$ d) $256_{10} = 100_{16}$ 10011000

⑧ c) $99 \rightarrow 9A, AF \rightarrow 80, FFAB \rightarrow FFAC, FFFF \rightarrow 10000$