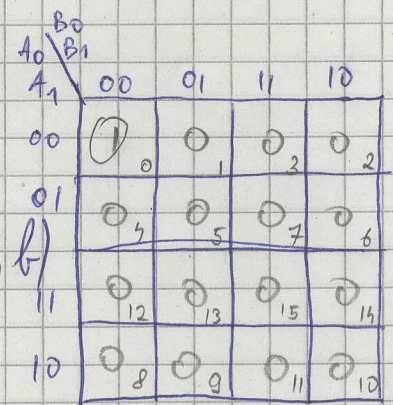
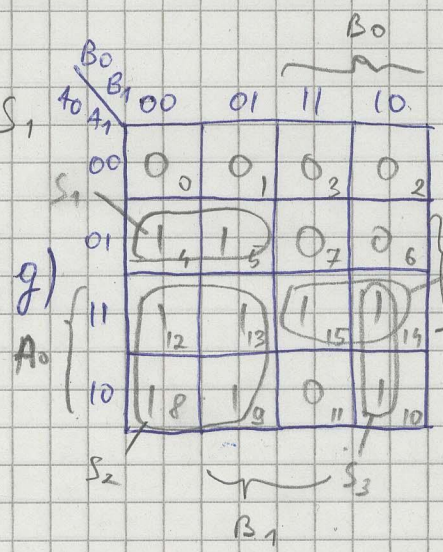
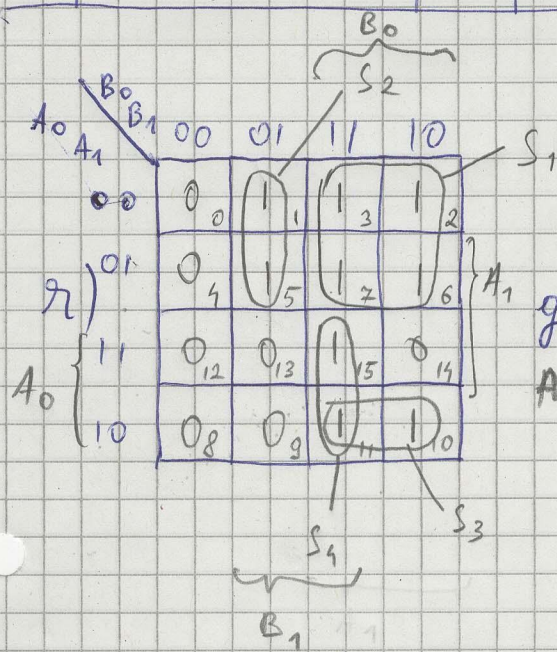


#	A ₀	A ₁	B ₀	B ₁	<	=	>	R	G	B
0	0	0	0	0	0	1	0	0	0	1
1	0	0	0	1	1	0	0	1	0	0
2	0	0	1	0	1	0	0	1	0	0
3	0	0	1	1	1	0	0	1	0	0
4	0	1	0	0	0	0	1	0	1	0
5	0	1	0	1	0	1	0	1	1	0
6	0	1	1	0	1	0	0	1	0	0
7	0	1	1	1	1	0	0	1	0	0
8	1	0	0	0	0	0	1	0	1	0
9	1	0	0	1	0	0	1	0	1	0
10	1	0	1	0	0	1	0	1	1	0
11	1	0	1	1	1	0	0	1	0	0
12	1	1	0	0	0	0	1	0	1	0
13	1	1	0	1	0	0	1	0	1	0
14	1	1	1	0	0	0	1	0	1	0
15	1	1	1	1	0	1	0	1	1	0



$$\begin{aligned} a) S_1 &= \overline{a_0} \overline{b_0} \overline{a_1} \overline{b_1} = \overline{a_0} \overline{b_0} \\ S_2 &= \overline{a_0} \overline{a_1} \overline{b_0} b_1 = \overline{a_0} \overline{b_0} b_1 \\ S_3 &= a_0 b_0 \overline{a_1} \overline{b_1} = a_0 b_0 \\ S_4 &= a_0 \overline{a_1} b_0 b_1 = a_0 b_0 b_1 \end{aligned}$$

$$\begin{aligned} \Rightarrow x &= \overline{a_0} \overline{b_0} + \overline{a_0} \overline{b_0} b_1 + a_0 b_0 + a_0 b_0 b_1 = \\ &= \overline{a_0} (b_0 + \overline{b_0} b_1) + a_0 b_0 (1 + b_1) = \\ &= \overline{a_0} (b_0 + \overline{b_0}) (b_0 + b_1) + a_0 b_0 = \\ &= a_0 (b_0 + b_1) + a_0 b_0 = \\ &= a_0 b_0 + a_0 b_1 + a_0 b_0 = \\ &= a_0 b_0 + a_0 b_1 = a_0 (b_0 + b_1) \end{aligned}$$

$$\begin{aligned} g) S_1 &= \overline{a_0} a_1 \overline{b_0} \\ S_2 &= a_0 \overline{b_0} \\ S_3 &= a_0 b_0 \\ S_4 &= a_0 a_1 b_0 \end{aligned}$$

$\Rightarrow (*)$

$$\begin{aligned} b) S_1 &= \overline{a_0} \overline{a_1} \overline{b_1} \overline{b_0} \Rightarrow b = \overline{a_0} \cdot \overline{b_0} \cdot \overline{a_1} \cdot \overline{b_1} = \\ &= \overline{a_0 \cdot b_0 \cdot a_1 \cdot b_1} = \\ &= \overline{a_0 + b_0 + a_1 + b_1} \end{aligned}$$

$$\begin{aligned} x &= \overline{a_0} \overline{b_0} + \overline{a_0} \overline{b_0} b_1 + a_0 b_0 + a_0 b_0 b_1 = \\ &= \overline{a_0} (b_0 + \overline{b_0} b_1) + a_0 b_0 (b_1 + 1) = \\ &= \overline{a_0} (b_0 + \overline{b_0} b_1) + a_0 b_0 = \\ &= \overline{a_0} b_0 + \overline{a_0} \overline{b_0} b_1 + a_0 b_0 = \\ &= (\overline{a_0} b_0 + a_0 b_0) + \overline{a_0} \overline{b_0} b_1 = \\ &= b_0 (\overline{a_0} + a_0) + \overline{a_0} \overline{b_0} b_1 = \\ &= \boxed{b_0 + \overline{a_0} \overline{b_0} b_1} \end{aligned}$$

$$\begin{aligned} g) (*) \quad & \overline{a_0} a_1 \overline{b_0} + a_0 \overline{b_0} + a_0 b_0 + a_0 a_1 b_0 = \\ &= \overline{a_0} a_1 \overline{b_0} + a_0 (b_0 + a_1 b_0 + \overline{b_0}) = \\ &= \overline{a_0} a_1 \overline{b_0} + a_0 (a_1 b_0) = \overline{a_0} a_1 \overline{b_0} + a_0 a_1 b_0 = \\ &= a_1 (\overline{a_0} \overline{b_0} + a_0 b_0) = a_1 (a_0 \oplus b_0) \end{aligned}$$