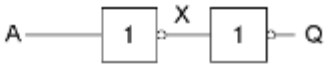
Aufgabe 1)
Zeichne für folgende Funktionen jeweils die Schaltbilder mit Logisim bzw. Logiksim!

Q = A ^ ¬B ^ ¬C
Q = (A ^ B) v (A ^ C)
Q = A v ¬B v ¬C
Q = A v (B v C)
Q = A v B v C
Q = (A v B) v C

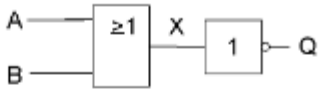
Aufgabe 2)

Vervollständige zu den gegebenen Schaltbildern die jeweilige Wahrheitstabelle und erstelle den jeweiligen schaltalgebraischen Ausdruck!

Nr. 1



Nr. 2



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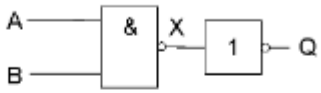

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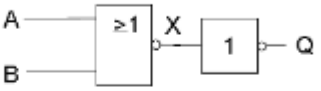
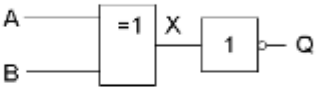


Nr. 5



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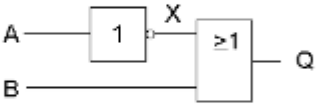
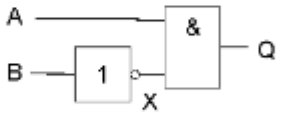


Nr. 7



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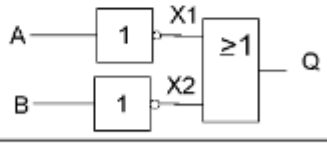

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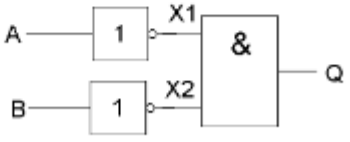
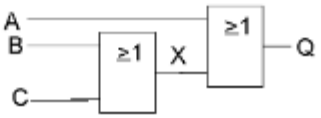
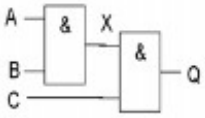


Nr. 10



Nr. 11



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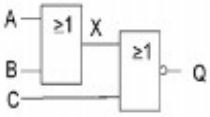

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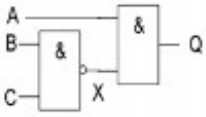

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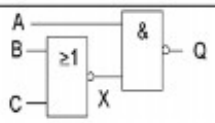

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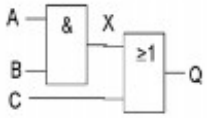
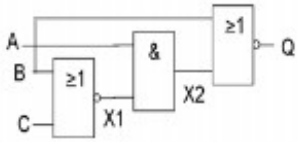
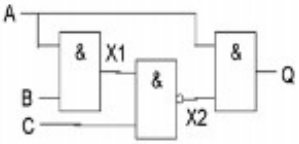


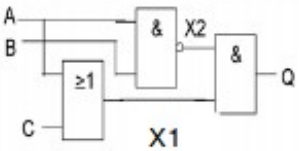
Nr. 16



Nr. 17



Nr. 18



zur Nr. 1

A	X	Q
0		
1		

zur Nr. 2

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 3

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 4

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 5

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 6

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 7

A	B	X	Q
0	0		
0	1		
1	0		
1	1		

zur Nr. 8

A	B	X1	X2	Q
0	0			
0	1			
1	0			
1	1			

zur Nr. 9

A	B	X1	X2	Q
0	0			
0	1			
1	0			
1	1			

Wahrheitstabelle zur Nr. 10

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 11

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 12

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 13

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 14

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 15

A	B	C	X	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

Wahrheitstabelle zur Nr. 16

A	B	C	X1	X2	Q
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

Wahrheitstabelle zur Nr. 17

A	B	C	X1	X2	Q
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

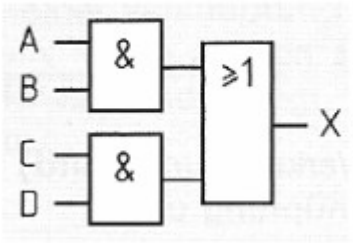
Wahrheitstabelle zur Nr. 18

A	B	C	X1	X2	Q
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

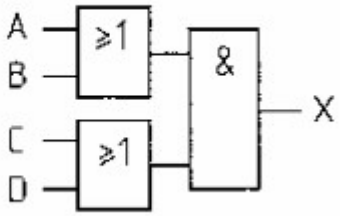
Aufgabe 3)

Wandle folgende Schaltungen um!

a) … in NAND-Technik



b) … in NOR-Technik



Aufgabe 4)

Löse folgende Textaufgabe!

In einer Kläranlage mit den Pumpen A und B muss immer nur eine der beiden Pumpen in Betrieb sein. Ein Abweichen vom geforderten Zustand (also beide Pumpen in Betrieb oder beide Pumpen abgeschaltet) wird durch eine Störmeldeleuchte P1 angezeigt.
Erstellen Sie für die Störmeldeleuchte P1

a) die Wahrheitstabelle
b) den schaltalgebraischen Ausdruck und
c) den Schaltplan.