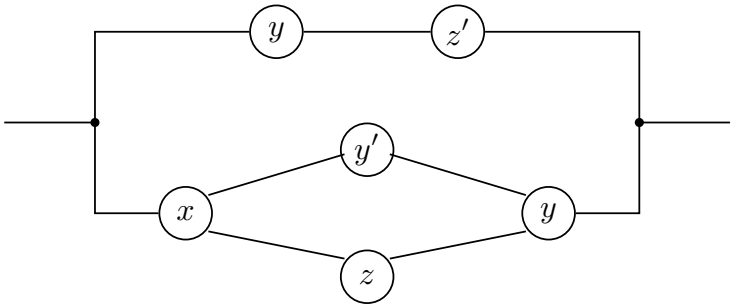
The University of Sydney

MATH 1004

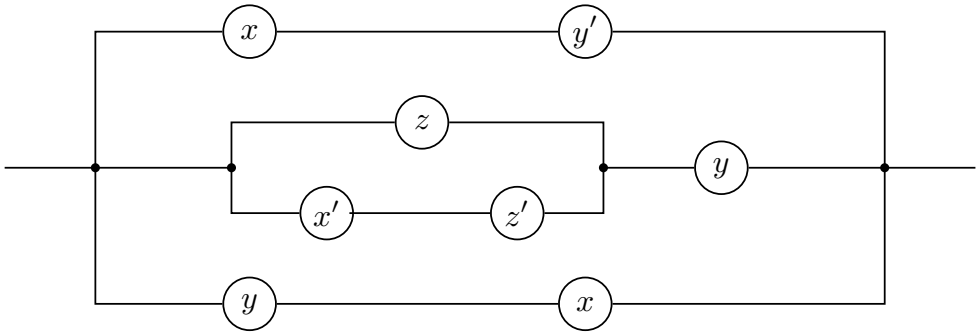
Second Semester	Discrete Mathematics	2011

Tutorial 7 Week 8

1. Write a Boolean expression and the Boolean function for the switching circuit:



2. Write a Boolean expression and the Boolean function for the switching circuit:



3. Write down Boolean expressions in disjunctive normal form which represent the following Boolean functions and then find their corresponding switching circuits.

(i)

x	y	z	$f(x,y,z)$
1	1	1	0
1	1	0	1
1	0	1	1
1	0	0	1
0	1	1	0
0	1	0	1
0	0	1	0
0	0	0	1

(ii)

x	y	z	$f(x,y,z)$
1	1	1	0
1	1	0	1
1	0	1	1
1	0	0	0
0	1	1	1
0	1	0	0
0	0	1	0
0	0	0	0

4. Find a Boolean expression and a switching circuit for each of the following Boolean functions.

(i)

x	y	$f_1(x,y)$
1	1	0
1	0	0
0	1	0
0	0	0

(ii)

x	y	$f_2(x,y)$
1	1	1
1	0	1
0	1	1
0	0	1

5. Write down the other 14 Boolean functions of two variables and write down their Boolean expressions in disjunctive normal form.

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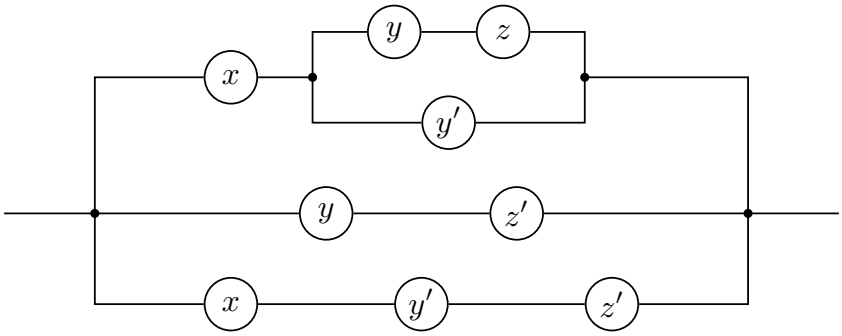
Problem Set 7

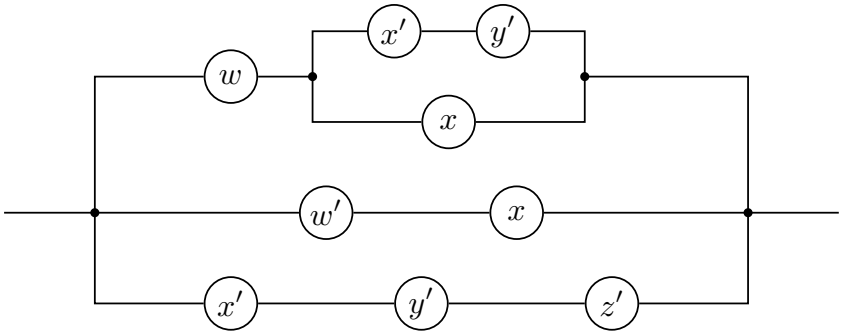
1. Consider the following switching circuit.



(*i*) Write down a Boolean expression which represents the switching circuit.

(*ii*) Draw up the Boolean function corresponding to the switching circuit and write down the corresponding Boolean expression in disjunctive normal form.

2. Consider the following switching circuit.



(*i*) Write down a Boolean expression which represents the switching circuit.

(*ii*) Draw up the Boolean function corresponding to the switching circuit and write down the corresponding Boolean expression in disjunctive normal form.