Norwegian University of Science
and Technology
Institutt for matematiske fag

MA0301 Elementary discrete mathematics Spring 2017

Exercise set 3

1 Basic exercises

1 Grimaldi's book (5. ed., Exercises 15.1): solve **Exercise 1 a,b**

2 Grimaldi's book (5. ed., Exercises 15.1): solve **Exercise 2 a,b**

3 Grimaldi's book (5. ed., Exercises 15.1): solve **Exercise 11 a**

4 Grimaldi's book (5. ed., Exercises 15.1): solve **Exercise 12**

5 Let B be a Boolean algebra. For $x, y, z \in B$ find the dual expressions of

$i)$ $(x + y') \cdot (z' + y)'$ $ii)$ $(1 + x) \cdot y + x \cdot y' \cdot z$ $iii)$ $(x \cdot y + 1) \cdot (0 + x) \cdot z$

6 Let B be a Boolean algebra. Prove for $x, y, z \in B$ that if $x \cdot y = x \cdot z$ and $x' \cdot y = x' \cdot z$, then $y = z$.

7 Let B be a Boolean algebra. Let $x, y, z \in B$ and reduce the following expressions as much as possible.

$i)$ $xyx'z$ $ii)$ $xyzy$