MA0301
ELEMENTARY DISCRETE MATHEMATICS
NTNU, SPRING 2019

Exercise Set 9

NOTE: Problems marked with a ⋆ are mandatory. Their solutions must be included to get the set approved.

⋆ **Exercise 1.** (Grimaldi, 5. ed., Exercises 1.1-1.2, page 11) *Exercise 11*

⋆ **Exercise 2.** (Grimaldi, 5. ed., Exercises 1.1-1.2, page 11) *Exercise 24*

⋆ **Exercise 3.** (Grimaldi, 5. ed., Exercises 1.1-1.2, page 11) *Exercise 27 a), b)*

⋆ **Exercise 4.** (Grimaldi, 5. ed., Exercises 1.4, page 44) *Exercise 7*

⋆ **Exercise 5.** (Grimaldi, 5. ed., Exercises 1.3, page 24) *Exercise 29*

⋆ **Exercise 6.** (Grimaldi, 5. ed., Exercises 1.3, page 24) *Exercise 19*

⋆ **Exercise 7.** (Grimaldi, 5. ed., Exercises 1.4, page 44) *Exercise 28*

⋆ **Exercise 8.** *Show that the function f is surjective if and only if the following holds: for every two functions h_1 and h_2 with domain of h_1 equal to the domain of h_2 equal to the codomain of f, the following right cancellation is satisfied: if $h_1 f = h_2 f$ then $h_1 = h_2$.*

⋆ **Exercise 9.** (Grimaldi, 5. ed., Exercises 5.7, page 288) *Exercise 21*

⋆ **Exercise 10.** (Grimaldi, 5. ed., Exercises 15.1 a),b), page 719) *Exercise 14*

Exercise 11. *Find the appropriate values of $n_0 > 0$ such that $n_0^3 \geq 6n_0^2$. Then show that the statement is true for all $n \geq n_0$.*

Exercise 12. *Let B be a Boolean algebra. Let $x, y, z \in B$ and reduce the following expressions as much as possible.*

i) $xy\overline{z}yx$ *ii)* $xy\overline{z}y\overline{x}\,\overline{z}$

Date: March 10, 2019.