



1 Basic exercises

- 1 Grimaldi's book (5. ed., Exercises 2.2, page 66): solve **Exercise 13** and describe in detail in your own words the relation with the proof of Theorem 3.4 on page 138 in Grimaldi's book (Thm. II. 15. of lecture 4).

- 2 By using rules of inference, show that the following arguments are true:

$$\begin{aligned} i) & \neg(a \wedge b) \wedge (\neg c \rightarrow b) \rightarrow (a \rightarrow c) \\ ii) & \neg(\neg p \vee q) \wedge (\neg z \rightarrow \neg s) \wedge ((p \wedge \neg q) \rightarrow s) \wedge (\neg z \vee r) \rightarrow r \end{aligned}$$

- 3 Grimaldi's book (5. ed., Exercises 2.4, page 100): solve **Exercise 1**

- 4 Grimaldi's book (5. ed., Exercises 2.4, page 100): solve **Exercise 2**

- 5 Let

$$C := \{n \in \mathbb{N} \mid n \text{ is a multiple of } 6\}$$

and

$$D := \{n \in \mathbb{N} \mid n \text{ is a multiple of } 2 \text{ and } n \text{ is a multiple of } 3\}.$$

Show that $C = D$.

- 6 Grimaldi's book (5. ed., Exercises 3.1, page 135): solve **Exercise 17**