Exercises 1   Sets
Set, element, empty set, subset, intersection, union, complement

Objectives

- understand what a set, an element of a set, an empty set, a subset, an intersection, a union, a complement is.
- be able to perform basic set operations.

Problems

1.1   Look at the sets A, B, and C:

A = Set of all the cities of the world
B = Set of all the European cities
C = Set of all the coastal cities of the world

Find at least four elements of the following sets:

a) $B \cap C$ b) $B \setminus C$

c) $C \setminus B$ d) $A \setminus (B \cup C)$

1.2   Harshbarger/Reynolds*: Chapter 0 (Algebraic Concepts), Section 0.1 (p. 2-9)
(Scanned pages 2-55 and A1-A5 in file "Algebraic Concepts.pdf" on Moodle)

a)   Theory (p. 2-6)

b)   Exercises (p. 6-9)

*Harshbarger, R.J. and Reynolds, J.J.: Mathematical Applications for the Management, Life, and Social Sciences; Houghton Mifflin Company, Boston / New York 2007, 8th edition, ISBN 978-0-618-73162-6

Answers

1.1   a)   B ∩ C = {Lisbon, Copenhagen, Barcelona, Naples, Stockholm, ...}

       b)   B \ C = {London, Paris, Madrid, Berlin, Rome, ...}

       c)   C \ B = {Tokyo, San Francisco, Sydney, Rio de Janeiro, ...}

       d)   A \ (B ∪ C) = {Chicago, Mexico City, Nairobi, Beijing, ...}

1.2   see Harshbarger/Reynolds: Chapter 0, Algebraic Concepts
       (Scanned pages 2-55 and A1-A5 in file "Algebraic Concepts.pdf" on Moodle)