

ABSTRACT

The thesis deals with relations and their applications. The first chapter summarizes the introductory theoretical knowledge that is necessary for understanding the topic relations: an element, set, ordered pairs, Cartesian Product. The important definitions are introduced for all of these concepts and the related information is summarized within this chapter. The second chapter defines the concept of relations and operations on them. It includes various types of graphical representations of relations and their advantages and disadvantages. The concept of relation on a set and the properties of this relation alongside with some special types of relations derived from them are introduced in this chapter. The concepts of function are also defined in this part of the thesis. The third chapter indicates the relations that appear in real life - in relationships and games, in curriculum and puzzles. The properties of those relations are determined and the knowledge of relations and their properties is used to facilitate the solution of logical problems. It also supports gaining deeper understanding of those problems. The thesis includes two groups of tasks. The first one covers elementary tasks related to the topic of sets, ordered pairs, Cartesian Product and relations. The second part is concerned with determining the properties of relations. Thus, the thesis is the summary of knowledge of relations that is extended by the possibility of their application in real life.