15 Set Theory

In mathematics a set can be thought of as a collection of distinct objects considered as a whole. Although this appears to be a simple idea, sets are a fundamental concept in mathematics.

The objects of a set are also called its members. The elements can be anything: numbers, people, letters of the alphabet, other sets, etc. Sets are conventionally denoted by capital letters, for example, A, B and C. The two sets A and B are said to be equal if every member of A is also a member of B and every member of B is a member of A. This is written A = B.

For an excellent overview with diagrams that explain the basic concepts well, go to
http://en.wikipedia.org/wiki/Set

Exercises 15.1:

(i) Two sets A, B are called equal if

   (a) they have the same number of elements

   (b) any element of A is an element of B

   (c) any element of A is an element of B and any element of B is an element of A

(ii) A set A is called a subset of B if

   (a) A has less elements than B

   (b) any element of A is an element of B

   (c) any element of A is an element of B and any element of B is an element of A

(iii) Suppose A is a subset of B and B is a subset of C. Then

   (a) C is a subset of A

   (b) A is a subset of C

   (c) B is a subset of A

15.1 Answers to Exercises

15.1:

(i) c

(ii) b

(iii) b