

EXERCISE 1.1

What is the difference between a collection and a set? Give reasons to support your answer.

Solution:

Well defined collections are sets.

Examples: The collection of good cricket players of India is not a set. However, the collection of all good player is a set.

The collection of vowels in English alphabets is a set.

Thus, we can say that every set is a collection, but every collection is not necessarily a set. Only well defined collections are sets.

1. Which of the following collections are sets? Justify your answer:

(i) A collection of all natural numbers less than 50.

(ii) The collection of good hockey players in India.

(iii) The collection of all the girls in your class.

(iv) The collection of all talented writers of India.

(v) The collection of difficult topics in Mathematics.

(vi) The collection of novels written by Munshi Prem Chand.

(vii) The collection of all questions of this chapter.

(viii) The collection of all months of a year beginning with the letter J.

(ix) A collection of most dangerous animals of the world.

(x) The collection of prime integers.

Solution:

(i) It is a set. Since, collection of all natural numbers less than 50 forms a set as it is well defined.

(ii) It is not a set. Since, the term ‘good’ is not well defined.

(iii) It is a set. Since, a collection of all the girls in your class it is a definite quantity hence it is a set.

(iv) It is not a set. Since, the term ‘most’ is not well defined. A writer may be talented in the eye of one person, but he may not be talented in the eye of some other person.

(v) It is not a set. Since, the term ‘difficult’ is not well defined. A topic may be difficult for one person, but may not be difficult for another person.

(vi) It is a set. Since, a collection of novels written by Munshi Prem Chand it is a definite

quantity hence it is a set.

(vii) It is a set. Since, a collection of all the questions in this chapter. It is a definite quantity hence it is a set.

(viii) It is a set. Since, a collection of all months of a year beginning with the letter J. It is a definite quantity hence it is a set.

(ix) It is not a set. Since, the term ‘most dangerous’ is not well defined. The notion of dangerous animals differs from person to person.

(x) It is a set. Since, a collection of prime integers. It is a definite quantity hence it is a set.

2. If $A = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, then insert the appropriate symbol or in each of the following blank spaces:

(i) $4 \dots\dots A$

(ii) $-4 \dots\dots A$

(iii) $12 \dots\dots A$

(iv) $9 \dots\dots A$

(v) $0 \dots\dots A$

(vi) $-2 \dots\dots A$

Solution:

The symbol ‘ \in ’ means belongs to. ‘ \notin ’ means does not belong to.

(i) $4 \dots\dots A$

$4 \in A$ (since, 4 is present in set A)

(ii) $-4 \dots\dots A$

$-4 \notin A$ (since, -4 is not present in set A)

(iii) $12 \dots\dots A$

$12 \notin A$ (since, 12 is not present in set A)

(iv) $9 \dots\dots A$

$9 \in A$ (since, 9 is present in set A)

(v) $0 \dots\dots A$

$0 \in A$ (since, 0 is present in set A)

(vi) $-2 \notin A$

$-2 \notin A$ (since, -2 is not present in set A)



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