

CHAPTER - 1 SETS

Set of Prime number between 10 and 20 = $\{11, 13, 17, 19\}$

$A = \{11, 13, 17, 19\}$ Roster form
or
Tabular form

Assignment :

* Write the set of all factors of 15 in roster form.

Ans) $A = \{1, 3, 5, 15\}$

Elements of a set

$A = \{1, 3, 5, 15\}$

$2 \notin A$

$1 \in A$

\in = belongs to

\notin = not belongs to

$\{ \}$ = braces

Sets and their Representations

- 1) set of all natural numbers = \mathbb{N}
- 2) set of all real numbers = \mathbb{R}
- 3) set of all rational numbers = \mathbb{Q}
- 4) set of all integers = \mathbb{Z}

5) Set of positive real numbers = \mathbb{R}^+

6) Set of positive rational numbers = \mathbb{Q}^+

* Set of even natural numbers less than 100.

Ans) $A = \{2, 4, 8, 6, \dots, 98\}$

* Set of even numbers.

Ans) $A = \{2, 4, 6, 8, \dots\}$

* Set of all real numbers between 1 and 2

Ans) $A = \{x : x \text{ is a real number between 1 and 2}\}$ Set builder form

$A = \{x : 1 < x < 2\}$

* $A = \{11, 13, 17, 19\}$ write it in set builder form.

Ans) $A = \{x : x \text{ is a prime number between 10 and 20}\}$

* $A = \{2, 5, 28, 14\}$ write it in set builder form.

Ans) $A = \{x : x \text{ is a natural number } < 1 \text{ and } > 29\}$

Exercise 1.1

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

Ans) i) The set of all the months of a year beginning with the letter J is well defined. So the elements are January, June and July. So it is a set.

ii) The collection of ten most talented writers in India. It is not a set, since 'most talented' is not defined properly.

iii) It is not a set. The 'best cricket batsmen' is different from person to person.

iv) It is a set. Because the collection of boys in the class is well defined.

v) It is a set.

vi) It is a set.

vii) It is a set.

viii) It is a set.

ix) It is not a set because "most dangerous" is not defined properly.

2. Let $A = \{1, 2, 3, 4, 5, 6\}$. Insert the appropriate symbol \in or \notin in the blank spaces:

Ans) i) $5 \in A$

ii) $8 \notin A$

iii) $0 \notin A$

iv) $4 \in A$

v) $2 \in A$

vi) $10 \notin A$