Ex-10-(D)

1. State whether the given set is infinite or finite:

(i) $\{3,5,7,\ldots\ldots\}$ (ii) $\{1,2,3,4\}$
(iii) $\{\ldots,-3,-2,-1,0,1,2\}$ (iv) $\{20,30,40,50\ldots\ldots200\}$

Solution:

i- Set $\{3,5,7,\ldots\ldots\}$ is infinite.
ii- Set $\{1,2,3,4\}$ is finite.
iii- Set $\{\ldots\ldots-3,-2,-1,0,1,2\}$ is infinite.
iv- Set $\{20,30,40,50,\ldots\ldots\ldots\ldots200\}$ is finite.

2. Which of the following sets is empty?

(i) Set of counting numbers between 5 and 6.
(ii) Set of odd numbers between 7 and 19.
(iii) Set of odd numbers between 7 and 9.
(iv) Set of even numbers which are not divisible by 2.

Solution:

i- We know that, there is no counting number between 5 and 6.
Hence, the given set is empty.

ii- There are elements in the set of odd numbers between 7 and 9
Hence, the given set is empty.

iii- We know that, there is no odd numbers between 7 and 9.
Hence the given set is empty.

iv- We know that there is no even number that is not divisible by 2.
Hence the given set is empty.

v We find one element in the given set.
Hence, the given set is not empty.

~~3- State whether true or false :~~

~~(i) Sets {4,9,6,2} and {6,2,4,9} are not the same.~~

3. State which pair of sets given below are equal sets and which are equivalent.

(i) {3,5,7} and {5,3,7}
(ii) {8,6,10,12} and {3,2,4,6}
(iii) {7,7,2,1,2} and {1,2,7}
(iv) {2,4,6,8,10} and {a,b,d,e,m}

Solution :

(i)- Given sets
{3,5,7} and {5,3,7}
The elements are same in both sets.
Hence, the given pair of sets is equal.

ii- Given sets
{8, 6, 10, 12} and {3, 2, 4, 6}
The elements of both the sets are different but the numbers of elements is same

Hence the given pair of sets is equivalent.

iii- Given sets
{7, 7, 2, 1, 2} and {1, 2, 7}

The elements are same in both the sets.

Hence, the given pair of sets is equal.

iv- Given sets

{2, 4, 6, 8, 10} and {a, b, d, e, m}

The elements of both the sets are different but number of elements is same.

4. State which of the following are Finite and which are infinite.

(i) Set of integers (ii) {Multiple of 5}
(iii) {Fraction between 1 and 2}
(iv) {Numbers of people in India}
(v) Set of trees in the world.
(vi) Set of leaves on a tree.
(vii) Set of children in all the schools of Delhi
(viii) {....., -4, -2, 0, 2, 4, 6, 8}

ix. {-12, -9, -6, -3, 0, 3, 6, ...}
x. {Number of points in a line segment 4 cm long}.

Solution :

i- We know, integers are infinite.
Hence, set of integers are infinite.

ii- We know multiple of 5 are infinite.
Hence, set of {multiple of 5} is infinite.

iii- There are infinite number of fraction between 1 and 2.
Hence, set {fraction between 1 and 2} is infinite.

iv- There is finite number of people in India.
Hence, set {Number of people in India} is finite.

v- There are infinite number of trees in world. Hence, set ~~&~~ of tree in world is infinite.

5. ~~State wh~~
vi- There is finite number of leaves on a tree.
Hence, the set of leaves on a tree is finite.
vii- We know that children in all schools of Delhi are counted.
Hence, the set of children in all the school of

Delhi are finite.

viii- There is/are uncounted numbers of integers in this set.
Hence, the set is infinite.

ix- There are ~~uncounted~~ uncounted positive integers in this set.
Hence, the set is infinite.

x- uncounted number of points in a line segment.
Hence, the set is infinite.

5. State whether or not the following sets are empty:

(i) {Prime numbers divisible by 2}
(ii) {Negative natural numbers}
(iii) {Women with height 5 metre}
(iv) {Integers less than 5}
(v) {Prime numbers between 17 and 23}
(vi) {Set of even numbers not divisible by 2}
(vii) Set of multiples of 3 that are more than 9 and less than 15

Solution:

i- Not empty
ii- Empty
iii- Empty
iv- Not empty
v- Not empty
vi- Empty
vii- Not empty