HW 30/9/21

Exercise 10(D)

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

i) $\{3, 5, 7, \ldots\}$ → Infinite set
ii) $\{\ldots, -3, -2, -1, 0, 1, 2\}$ → Infinite set.
iii) $\{1, 2, 3, 4\}$ → Finite set
iv) $\{20, 30, 40, 50, \ldots, 200\}$ → Finite.

2. Which of the following sets is empty:

i) Set of counting numbers between 5 and 6 → $\{\}$ or $\emptyset$ or Empty Set.

ii) Set of odd numbers between 7 and 19 → $\{9, 11, 13, 17\}$ Not empty set.

iii) Set of odd numbers between 7 and 9 → $\{\}$ or $\emptyset$, empty set.

iv) Set of even numbers that are not divisible by 2.
→ $\{\}$ or $\emptyset$ or Empty set.

v) $\{0\}$ → Not empty set.

3. State which of the following pairs of set are equal sets and which are equivalent:

i) $\{3, 5, 7\}$ and $\{5, 3, 7\}$ → Equal
ii) $\{8, 6, 10, 12\}$ and $\{3, 2, 4, 6\}$ → Equivalent
iii) $\{7, 2, 7, 1, 2\}$ and $\{1, 2, 7\}$ → Equal.
iv) $\{2, 4, 6, 8, 10\}$ and $\{a, b, d, e, m\}$ → Equivalent.

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

i) Set of integers → Infinite set

ii) {Multiples of 5} → Infinite set.

iii) {Fraction between 1 and 2} → Infinite set

iv) {Number of people in India} → Finite set

v) Set of trees in the world → Infinite set.

vi) Set of leaves on a tree → Finite set

vii) Set of children in all schools in Delhi → Finite set

viii) {..., -4, -2, 0, 2, 4, 6, 8} → Infite set.

ix) {-12, -9, -6, -3, 0, 3, 6, ...} → Infinite set.

x) {number of points in a line segment 4cm long} → Infinite set.

Exercise 10 (E)

2- Given : A = {Natural numbers less than 10}
B = {letters of the word 'PUPPET'}
C = {Squares of the first four whole numbers}
D = {Odd numbers divisible by 2}.

Find :

(i) $n(A) = 9$ (ii) $n(B) = 4$ (iii) $n(C) = 4$ (iv) $n(D) = 0$

3. State true or false for each of the following. Correct the wrong statement.

(i) If $A = \{0\}$, then $n(A) = 0$ → False.
Correct → If $A = \{0\}$, then $n(A) = 1$

(ii) $n(\emptyset) = 1$ → False
Correct - $n(\emptyset) = 0$

(iii) If $T = \{a, t, a, h, b, d, h\}$; then $n(T) = 5$ → True

(iv) If $B = \{1, 5, 51, 15, 5, 1\}$ then $n(B) = 6$
→ False
Correct → If $B = \{1, 5, 51, 15, 5, 1\}$, then $n(B) = 4$.

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