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Class. VII Sec - B

Exercise 13 B

1. Write the cardinal number of each of the following sets:

i) A = {Set of days in a leap year}. $n(A) = 366$

ii) B = {Set of numbers on a clock-face}. $n(B) = 12$

iii) C = $\{x : x \in N \text{ and } x \leq 7\}$ $n(C) = 7$

iv) D = {Set of letters in word "Panipat"} $n(D) = 5$

v) E = {Set of prime numbers between 5 and 15}. $n(E) = 3$

vi) F = $\{x : x \in Z \text{ and } -2 < x \leq 5\}$ $n(F) = 7$

vii) G = $\{x : x \text{ is a perfect square number}, x \in N \text{ and } x \leq 30\}$ $n(G) = 5$

2. For each set, given below, state whether it is finite set, infinet set or null set.

i) {natural numbers more than 100} = {It is an infinite set}

ii) A = {x : x is an integer between 1 and 2} = {It is a null set}

iii) B = {x : x ∈ W; x is less than 100} = {It is finite set}

iv) {Set of mountains in the world} {It is an infinite set}

v) {multiples of 8} {It is an infinite set}

vi) {even numbers are not divisible by 2} {It is a null set}

vii) {squares of natural numbers} = It is an infinite set.

viii) {coins used in India} It is a finite set

ix) C = {x | x is a prime number between 7 and 10} It is a null set

3. State which of the following pairs of sets are disjoint:

i) {0, 1, 2, 6, 8} and {odd numbers less than 10}

ii) {birds} and {trees}

iii) {x : x is a fan of cricket} and {x : x is a fan of football}

iv) A = {natural numbers less than 10} and B = {x : x is a multiple of 5}

v) {people live in calcutta} and {people living in West Bengal}

Ans) ii) is only pair of disjoint set.

4. State whether the given pair are equal or equivalent set.

i) A = {first 4 natural numbers} and B = {first 4 whole numbers} equivalent set

ii) A = Set of letters of the word "follow" and equal set.
B = Set of letters of the word "Wolf"

iii) C = {even natural numbers less than 10} equivalent set.
and D = {odd natural numbers less than 9}

iv) A = {days of the week starting with the letter S} and equivalent set
B = {days of the week starting with the letter T}

v) M: {multiples of 2 and 3 between 10 and 20} and equal set.
N: {multiples of 2 and 5 between 10 and 20}

vi) P: {Prime numbers which is divide 70 exactly} and equivalent set.
Q: {Prime number which is divide 105 exactly}

vii) A: $\{0^2, 1^2, 2^2, 3^2, 4^2\}$ and ~~{0, 1, 4, 9, 16}~~ equal set
B: {16, 9, 4, 1, 0}

ix) A: {letters of the word SUPERSTITION} ~~equal set~~ equivalent set.
B: {letters of the word JURISDICTION}

5. Examine which of the following sets are empty sets:

i) The set of triangles having 3 equal sides. This is not an empty set.

ii) The set of lions in your class. This is an empty set.

iii) $\{x : x + 3 = 2 \text{ and } x \in N\}$ This is an empty set

iv) $P = \{x : 3x = 0\}$ This is not an empty set

6. State true or false

i) All examples of the empty sets are equal. True.

ii) All examples of the empty set are equivalent. True.

iii) If two sets have the same cardinal number they are equal sets. False

iv) If $n(A) = n(B)$ then A and B are equivalent sets. True.

v) If $B = \{x : x + 4 = 4\}$, the B is the empty set. Flase

vi) The set of all point in a line is a finite set. Flase

vii) The set of letters in your Mathematics book is infinite set. Flase

viii) If $M = \{1, 2, 4, 6\}$ and $N = \{x : x \text{ is a factor of } 12\}$; then $M = N$ Flase

ix) The set of whole numbers greaten ~~that~~ than 50 is an infinte set. True

x) If A and B are two different infinite sets, then $n(A) = n(B)$ Flase

7. Which of the following represent the null set?
$\{\varphi, \{0\}, 0, \{\}, \{\varphi\}\}$
φ and $\{\}$ are null set.