

HW
8.07.2021

REPRESENTATION OF SETS:

DESCRIPTION METHOD

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{ \text{a natural no. less than 6} \}$$

$$C = \{ x : x \text{ is a natural no. \& } x < 6 \}$$

ROSTER OR TABULAR METHOD

$$N = \{ 1, 2, 3, 4, 5, \dots \} \Rightarrow \mathbb{R}_0$$

RULER OR SET-BUILDER METHOD

$$N = \{ x : x \text{ is a counting no.} \}$$

EXERCISE - 10 (C)

1. Write each of the following in the Roster Form:

(i) The set of five nos. each of which is divisibility by 3

ans $A = \{ 1, 3, 6, 12, 18 \}$ = Roster method.

The set of

iii) integers between -4 and 4.
 ans: $x = \{-3, -2, -1, 0, 1, 2, 3\}$

word

iii) $\{x : x \text{ is a letter in the word 'SCHOOL'}\}$
 ans: $B = \{s, c, h, o, l\}$

iv) $\{x : x \text{ is an odd natural between 10 and 20}\}$

ans: $B = \{11, 13, 15, 17, 19\}$

v) $\{ \text{Vowels used in the word 'AMERICA'} \}$
 ans: $C = \{a, e, i\}$

vi) $\{ \text{consonants used in the word 'MADRAS'} \}$
 ans: $D = \{m, d, r, s\}$

2. Write each given set in the form Roster form

i) All prime numbers between 1 and 20.
 ans: $A = \{2, 3, 5, 7, 11, 13, 17, 19\}$

ii) The squares of the first four natural nos.
 ans: $B = \{1, 4, 9, 16\} = \{1^2, 2^2, 3^2, 4^2\}$

iii) Even no between 1 and 9
 ans: $C = \{2, 4, 6, 8\}$





iv) The first eight letters of the English alphabet
 ans: $X = \{a, b, c, d, e, f, g, h\}$

v) The letters of the word 'BASKET'.
 ans - A = { b, a, s, k, e, t }

vi) Four cities of India, whose names start with the letter 'J'.

ans - C = { Jaipur, Jansedpur, Jharsuguda, Jodhpur }

vii) Any, close geometrical figure.

ans - P = { hexagon, triangle, circle, square }
 = { , , ,  }

viii) Vowels used in the word 'MONDAY'.
 ans - Y = { O, A }

ix) Single digit no. that are perfect square as well.
 ans - T = { $0^2, 1^2, 2^2, 3^2$ }
 = { 0, 1, 4, 9 }

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3. Write each given set in the Set-builder Form =

ii) { 2, 4, 6, 8, 10 }

ans { $x : x$ is a even no. & $0 \leq x \leq 12$ }

iii) { 2, 3, 5, 7, 11 }

ans - { $x : x$ is the prime number less than 13 }

iv) { January, June, July }

ans - { $a : a$ is the month starting with the letter 'J' }

iv) $\{a, e, i, o, u\}$

Ans. $\{n : n \text{ is a vowel from English alphabet}\}$

v) $\{\text{Tuesday, Thursday}\}$

Ans. $\{s : s \text{ is the day of the week starting from the letter T}\}$

vi) $\{1, 4, 9, 16, 25\}$

Ans. $\{n : n \text{ is the square of five natural no.}\}$

or $\{x : x = n^2, n \in \mathbb{N}, n < 6\}$

vii) $\{5, 10, 15, 20, 25, 30\}$

Ans. $\{f : f \text{ is the multiple of 5}\}$

4. Write each of the following sets in Roster and also in Set-builder form:

i) Set of all natural no. that can divide 24 completely -

Ans - Roster Form -

$\{1, 2, 3, 4, 6, 8, 12, 24\}$

Set-builder Form -

$\{x : x \text{ is a natural no. and a factor of 24 which is divisible by it completely}\}$

iii) Set of odd no between 20 and 35 -

Ans - Roster Form -

$\{21, 23, 25, 27, 29, 31, 33, 35\}$

Set-builder form -

$\{a : a \text{ is a odd no. between 20 and 35}\}$

iii) Set of letter used in the word 'CALCUTTA'
ans. Roster Form -

$\{c, a, l, u, t\}$

Set-builder -

$\{n : n \text{ is a letter used in word 'calcutta'}\}$

iv) Set of names of the first five months of the year
ans Roster Form -

$\{\text{January, February, March, April, May}\}$

Set-builder -

$\{b : b \text{ is the first five months of the year}\}$

v) Set of all two-digit no. that are perfect square as well.

ans Roster Form - $\{16, 25, 36, 49, 64, 81\}$

Set-builder form -

$\{p : p \text{ is a two digit no. that are perfect square as well.}\}$

5. Roster form, the Set of:

i) the first ^{four} odd natural numbers each divisible by 5.

ans $\{5, 25, 35, \dots\}$

ii) the counting numbers between 15 and 35; each of which is divisible by 6

ans. $\{18, 24, 30\}$

iii) the names of the last three days of a week.

ans. $\{\text{Sunday, Saturday, Friday}\}$

iv) the names of the last four months of a year.

ans. $\{\text{September, October, November, December}\}$