

SETS

SUBJECT: MATHEMATICS

CHAPTER NUMBER:10

CHAPTER NAME: SETS

SUBTOPIC: Presentation of Sets, Description method,

Roster or Tabular Method

PERIOD NO: 3

CHANGING YOUR TOMORROW

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Learning outcomes

- Students will be able to represent set in Roster form.
- Students will be able to represent set in set builder form



PREVIOUS KNOWLEDGE TEST

- 1.i) Write the set of letters used in the word 'BHUBANESWAR'.
- (ii) Write the set of vowels used in the word 'CUTTACK'
- (iii) Write the set of consonants used in the word 'ODISHA'



Negative numbers and Integers

- Students will Learn set builder form and roster form with the help of a video.
- https://www.youtube.com/watch?v=FLgiccWI434&list=RDCMU CEWpbFLzoYGPfuWUMFPSaoA&start_radio=1&rv=FLgiccWI 434&t=31&t=0(14:35)



Set Builder Notation

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

$$A = \{x \mid x \in \mathbb{N}, 1 \leq x \leq 5\}$$

$$D = \{2, 4, 6, 8, 10, 12, 14\}$$

$$D = \{2x \mid x \in \mathbb{N}, 1 \leq x \leq 7\}$$

Introduction to Sets

Your Task[©]

· Write the following sets in the set builder form.

- (a) A = {2, 4, 6, 8}
- (b) B = {3, 9, 27, 81}
- (c) $C = \{1, 4, 9, 16, 25\}$
- (d) D = {1, 3, 5,}
- (e) E = {a, e, i, o, u}



Evaluation Question Ex-10C

- 2. Write each given set in the Roster Form:
- (i) All prime numbers between one and twenty
- (ii) The squares of first four natural numbers
- (iii) Even numbers between 1 and 9
- (iv) First eight letters of the English alphabet
- (v) The letters of the word 'BASKET'



Solution:

- (i) {2, 3, 5, 7, 11, 13, 17, 19} is the Roster form for all prime numbers between one and twenty
- (ii) {1, 4, 9, 16} is the Roster form for the squares of first four natural numbers
- (iii) {2, 4, 6, 8} is the Roster form for even numbers between 1 and 9
- (iv) {A, B, C, D, E, F, G, H} is the Roster form for first eight letters of the English alphabet
- (v) {B, A, S, K, E, T} is the Roster form for the letters of the word 'BASKET'

3. Write each given set in the Set-Builder Form:

- (i) {2, 4, 6, 8, 10} (ii) {2, 3, 5, 7, 11}
- (iii) {January, June, July}
- (iv) {a, e, i, o, u}

(v) {Tuesday, Thursday}

Solution:

- (i) {x: x is an even natural number less than 12} is the Set-Builder form for {2, 4, 6, 8, 10}
- (ii) {x: x is a prime number less than 12} is the Set-Builder form for {2, 3, 5, 7, 11}



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(iii) {x: x is a month of the year whose names starts with letter J} is the Set-Builder form for {January, July, June}
(iv) {x: x is a vowel in English alphabets} is the
Set-Builder form for {a, e, i, o, u}
(v) {x: x is a day of the week whose names starts with letter T}
is the Set-Builder form for {Tuesday, Thursday}
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- 4. Write each of the following sets in Roster (tabular) Form and also in Set-Builder Form
- (i) Set of all natural numbers that can divide 24 completely
- (ii) Set of odd numbers between 20 and 35
- (iii) Set of letters used in the word 'CALCUTTA'
- (iv) Set of names of the first five months of a year
- (v) Set of all two digit numbers that are perfect square as well



Solution: (i) The Roster Form is {1, 2, 3, 4, 6, 8, 12, 24}

The Set-Builder Form is {x: x is a natural number which divides 24 completely}

(ii) The Roster Form is {21, 23, 25, 27, 29, 31, 33}

The Set-Builder Form is {x: x is an odd number between 20 and 35}

(iii) The Roster Form is {C, A, L, U, T}

The Set-Builder Form is {x: x is a letter used in the word 'CALCUTTA'

(iv) The Roster Form is {January, February, March, April, May}

The Set-Builder Form is {x: x is a name of the first five months of a year}

(v) The Roster Form is {16, 25, 36, 49, 64, 81}

The Set-Builder Form is {x: x is a perfect square of two digit numbers}



- 5. Write, in Roster Form, the set of:
- (i) the first four odd natural numbers each divisible by 5
- (ii) the counting numbers between 15 and 35, each of which is divisible by 6
- (iii) the names of the last three days of a week
- (iv) the names of the last four months of a year

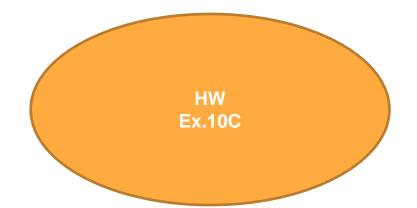
Solution:

- (i) {5, 15, 25, 35} is a Roster Form for the first four odd natural numbers each divisible by 5
- (ii) {18, 24, 30} is a Roster Form for the counting numbers between 15 and 35, each of which is divisible by 6
- (iii) {Friday, Saturday, Sunday} is a Roster Form for names of the last three days of a week
- (iv) {September, October, November, December} is a Roster Form for the last four months of a year



Additional Homework

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sets in tabular
                  following
           the
   Write
                                                form:
(i)
                 a natural number
    {X
                                    and
                                            X
(ii)
      {X
                         W
                                  and
                                         X
   {x : x is a month of a year having less than 31
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