Worksheet

1. State whether true or false.
   a. All the elements of a given set are enclosed in { } brackets and separated by commas.
   b. If A is a set of vowels in the word MOTHER, then A has 6 elements.
   c. If X is a set of prime numbers less than 10, then 5 belongs to X.
2. Choose the correct answer.
   a. If X is the set of letters of the word BALLAL, then X is equal to
      i. {B, A, L} ii. {B, A, L, L, A, L}
      iii. {B, L, A, L, L, A} iv. {B, L}
   b. If Y is the set of all the multiples of 2 which are less than 10, then Y =
      i. {1, 2 , 4 , 6 , 8 , 10 } ii. { 2 , 4 , 6 , 8 ,10 }
      iii. {1 , 2 , 4 , 6 , 8 } iv. { 2 , 4 , 6 , 8 }
   c. The set A is such that A = {x | 3 < x <12 and x is a natural number}, then A has _____ elements.
      i. 14 ii. 12
      iii. 10 iv. 8
   d. The set {M, A, T} in the set builder method can be written as
      i. {x|x is a letter of the word MATH} ii. {y|y is a vowel}
      iii. {p|p is a letter of the word MAMTA} iv. {q|q is a consonant}
3. Write the following sets in the roster form.
   a. {x|x is a multiple of 3 less than 25}
   b. {y|y is a letter of the word PAPAYA}
   c. Set of all vowels in the word BANANA
4. Write the following sets in the set builder form.
   a. {6, 9, 12} b. {P , H , Y , S , I , C , S}
5. Identify whether the given set is finite or infinite.
   a. Set of all prime numbers.
   b. Set of months in a year having 31 days.
   c. Set of natural numbers between 100 and 200.
   d. Set of even prime numbers greater than 2.
6. Which of the following sets are equal? Give reasons.
   a. {x|x is a natural number less than 5} and {0, 1, 2, 3}
   b. Set of vowels in the English alphabet and the set of first five even numbers.
   c. Set of all vowels in the word BATA and the set of vowels in the word AT.
7. Categorise the following sets as disjoint or overlapping. Give reasons.
   a. {x|x is a multiple of 3 and x < 20} and {y|y is a multiple of 2 and y < 20}

b. Set of vowels of the word ATMA and set of vowels of the word VEER.

c. Set of letters of the word KALYAN and set of letters of the word MANYA.

d. The sets {*a*, *n*, *d*} and {*o*, *r*}.

e. The set of months of a year which start with the letter J and set of first three months of a year.

8. Find the cardinal number of each of the following sets.

a. The set of consonants in the word MAYA.

b. The set of even numbers less than 15.

c. {*x*|*x* is a prime number less than 10}

d. {*y*|*y* is a letter in the word DELHI}

e. The set of vowels in the word VEERABHADRA.

9. If A = {*x* | *x* is a multiple of 2 and *x* < 12}, B = {*y*|*y* is an even number between 3 and 9}, find A – B.

10. Check whether the following sets A and B are disjoint or overlapping sets.

A = {*x* | *x* is a common factor of 15 and 30} and

B = {*x* | *x* is a multiple of 5}

11. If A = {3, 5, 7, 9, 11, 13} and B = {1, 2, 3, 4, 5, 6, 7}, then find A – B and B – A.

12. Find whether the given sets A and B are overlapping or disjoint sets.

a. A = {*x* : *x* is a vowel in the word RAJIV} and B = {*x* : *x* is a vowel in the word ANTICRIME}.

b. A = {*x* : *x* is a letter in the word KAMAL} and B = {*x* : *x* is a letter in the word SURINDER}.

Answers to Worksheet

1. a. True b. False c. True
2. a. i. b. iv. c. iv. d. iii.
3. a. {3, 6, 9, 12, 15, 18, 21, 24} b. {P, A, Y} c. {A}
4. a. {*x*|*x* is a multiple of 3 and 3 < *x* < 15}
   b. {*y*|*y* is a letter of the word PHYSICS}
5. a. Infinite b. Finite c. Finite d. Finite
6. c
7. a. Overlapping b. Disjoint c. Overlapping d. Disjoint
   e. Overlapping
8. a. 2 b. 7 c. 4 d. 5 e. 2
9. A – B = {2, 10} 10. overlapping 11. A – B = {9, 11, 13}, B – A = {1, 2, 4, 6}
12. a. overlapping b. disjoint