Worksheet

- 1. Choose the correct option.
 - a. The set which represents A = { $x | x \le 2$, x is a prime number} is
 - i. an infinite set ii. a singleton set
 - iii. a null set iv. a finite set with 2 elements
 - b. The cardinal number of the set $B = \{x \mid x \text{ is a factor of 16}\}$ is
 - i. 3 ii. 4
 - iii. 5 iv. 6
- 2. Represent the following sets in roster form and in set builder form:
 - a. The set of all multiples of 8 less than 50.
 - b. The set of all two-digit numbers whose sum of the digits is 8.
 - c. The set of all negative integers greater than -8.
- 3. Find the cardinal number of the following sets:
 - a. $P = \{x \mid x \text{ is a vowel in the word POISONOUS}\}$
 - b. $Q = \{x \mid x \text{ is a prime factor of } 420\}$
 - c. $C = \{x \mid x \text{ is an odd composite number less than 10} \}$
 - d. $D = \{x \mid x \text{ is a 3-digit number having the same digits}\}$
- 4. Which of the following pairs of sets are equal sets?
 - a. $M = \{x \mid x \text{ is a multiple of 9 less than 100}\}$
 - N = { $x \mid x$ is a multiple of 3 less than 100}
 - b. $O = \{x \mid x \text{ is a vowel in the word FAVOURITE}\}\$
 - $P = \{x \mid x \text{ is a vowel in the English alphabet}\}$
- 5. Write whether the following pairs of sets are overlapping sets or disjoint sets:
 - a. M = {m, i, n, u, t, e}
 - N = {s, e, c, o, n, d}
 - b. $O = \{x \mid x \text{ is a prime number less than } 10\}$
 - $P = \{x \mid x \text{ is an odd number less than } 10\}$
 - c. $Q = \{x \mid x \text{ is a positive integer}\}$
 - $R = \{x \mid x \text{ is a negative integer}\}$
- 6. Suggest appropriate universal sets for the following sets:
 - a. {21, 23, 25, 27, 29}
 - b. {41, 43, 47, 53, 59}
 - c. $\{..., -14, -13, -12, -11, -10\}$
- 7. Classify the following as True or False:
 - a. If n(A) = n(B), then A and B are equal sets.
 - b. If n(A) = n(B), then A and B are equivalent sets.
 - c. If $A = \{x : x + 5 = 5\}$, then A is an empty set.

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- d. If A = $\{1, 2, 4, 6\}$, and B = $\{x : x \text{ is a factor of } 12\}$, then A = B.
- e. If A and B are different infinite sets, then n(A) = n(B).

Answers to Worksheet

- 1. a. ii b. iii
- 2. a. Set builder form: {*x* | *x* is a multiple of 8, 8 ≤ *x* < 50} Roster form: {8, 16, 24, 32, 40, 48}
 - b. Set builder form: {*x* | *x* is a two-digit number where the sum of the digits is 8} Roster form: {17, 26, 35, 44, 53, 62, 71, 80}
 - c. Set builder form: $\{x | x \text{ is a negative integer and } x > -8\}$ Roster form: $\{-7, -6, -5, -4, -3, -2, -1\}$
- 3. a. 3 b. 4
 - c. 1 d. 9
- 4. In (b), pairs of sets are equal
- 5. a. Overlapping sets
 - b. Overlapping sets
 - c. Disjoint sets
- 6. a. The set of all odd numbers
 - b. The set of all prime numbers
 - c. The set of all negative integers
- 7. a. F b. T

c. F

d. F e. F