KALYAN ACADEMY

BHARATH NAGAR, HYD-18

SETS | WORK SHEET-1

1. 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 = {4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, ..., 52}

(f) F = {-10, ..., -3, -2, -1, 0, 1, 2, ….., 5}

(g) G = {O}

(h) P = { }

(i) H = {-5, 5}

(j) Q = {V, I, B, G, Y, 0, R}

2. Write the following sets in the roster form.

(a) A = $\{x : x \in W, x \leq 5\}$

(b) B = $\{x : x \in I, -3 < x < 3)$

(c) C = {x : x is divisible by 12}

(d) D = $\{x : x = 3p, p \in W, p \leq 3\}$

(e) E = $\{x : x = a^2, a \in N, 3 < a < 7\}$

(f) F = $\{x : x = n/(n + 1), n \in N$ and $n \leq 4\}$

(g) G = $\{x : x \in N, 3x - 2 < 5\}$

(h) J = $\{x : x \in N, x^2 < 16\}$

(i) K = {x : x is a prime number which is a divisor of 42}

(j) H = {x : x is a 2-digit natural number such that the sum of its digits is 5}

3. Which of the following are the examples of an empty set?

(a) The set of even natural numbers divisible by 3.

(b) The set of all prime numbers divisible by 2.

(c) $\{x : x \in N, 5 < x < 6\}$

(d) The set of odd natural numbers divisible by 2.

(e) B = {O}

(f) C = { }

(g) D = $\{x : x \in R, x^2 = -1\}$

(h) E = $\{x : x \in W, 3x + 1 = 2\}$

(i) P = {x : x is a prime number, 54 < x < 58}

(j) Q = {x : x = 2n + 3, n ∈ W, n ≤ 5}

4. Classify the following as finite and infinite sets.

(a) The set of days in a week

(b) A = {x : x ∈ N x > 1}

(c) B = {x : x is an even prime number}

(d) C = {x : x is a multiple of 5}

(e) D = {x : x is a factor of 30}

(f) P = {x : x ∈ Z, x < -1}

(g) The set of all letters in the English alphabet

(h) The set of all real numbers

5. From the sets given below, identify the equal sets.

A = {3, 5, 9, 11} Q = {m, s, t}

B = {8, 9, 1, 13} R = {o, p, a, z}

C = {-3, 3} T = {1, 8, 9, 13}

D = {s, t, m} M = {3, -3}

P = {9, 3, 5, 11}

X = {a, o, z, p}

6. Are the following pairs of sets equal?

(a) A = {2} B = {x: x ∈ N, x is an even prime number}.

(b) P = {1, 4, 9} Q = {x : x = n2, n ∈ N, n ≤ 3)

(c) X = {x : x ∈ W, x < 5} Y = {x : x ∈ N, x ≤ 5}

(d) M = {a, b, c, d} N = {p, q, r, s}

(e) D = {x : x is a multiple of 30} E = {x : x is a factor of 10}

7. Which of the following are equivalent sets?

(a) A = {1, 2, 3} B = {4, 5}

(b) P = {q, s, m} Q = {6, 9, 12}

(c) X = {x : x is a prime number less than 10} Y = {x : x ∈ N, x ≤ 4}

(d) R = {x : x = 2n + 3, n < 4, n ∈ N} S = {x : x = n/(n + 1), n ∈ R, n ≤ 4}

(e) U={The set of vowels in the English alphabet} V= {The set of consonants in the English alphabet}