

HW  
08/06/2024

## SET THEORY HOME ASSIGNMENT

- 1. a. All the colours in the rainbow - well-defined
- b. All the points that lie on a straight line - well defined
- c. All the honest members in the family - not well-defined
- d. All the consonants of the English alphabet - well defined
- e. All the tall boys of the school - not well defined
- f. All the efficient doctors of the hospital - not well defined
- g. All the handwriting teachers in a school - not well defined
- h. All the prime no.s less than 100 - well defined
- i. All the letters in the word GEOMETRY - well defined

2. Let  $A = \{a, b, c, d, e, f\}$ . Insert the appropriate symbol  $\in$  or  $\notin$  in

- a. ~~the~~  $d \in A$        $b \notin A$        $c = m \notin A$
- d.  $a \in A$        $e = e \in A$        $f = x \notin A$

3. a.  $A = \{2, 4, 6, 8\}$

$\{A : A \text{ is an even natural no.}\}$

b.  $B = \{3, 9, 27, 81\}$

$B = \{x : x = 3^n, n \in \mathbb{N}, 1 \leq n \leq 4\}$

c.  $C = \{1, 4, 9, 16, 25\}$

$C = \{x : x = n^2, \text{ where } n \text{ is a natural no. and } 1 \leq n \leq 10\}$

d.  $D = \{1, 3, 5, \dots\}$

$D = \{x : x = \text{an odd natural no.}\}$

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e.  $E = \{4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, \dots, 52\}$

$\{x: x = \dots\}$

f.  $F = \{-10, \dots, -3, -2, -1, 0, 1, 2, \dots, 5\}$

$\{x: x = -10 < n < 5, n \in \mathbb{Z}\}$

g.  $G = \{0\} \quad \{x: x = n - n; n \in \mathbb{R}\}$

h.  $P = \{*\}$