

THE VILLAGE INTERNATIONAL SCHOOL

RECAP ACTIVITY – SETS

1. Write the set $A = \{1, 4, 9, 16, 25, \dots\}$ in set-builder form.
2. Let $A = \{1, 2, 3, 4, 5, 6\}$. Insert the appropriate symbol \in or \notin in the blank spaces:
(i) $5 \dots A$ (ii) $8 \dots A$ (iii) $0 \dots A$
3. Write the following sets in roster form:
(i) $A = \{x : x \text{ is an integer and } -3 \leq x < 7\}$
(ii) $B = \{x : x \text{ is a natural number less than } 6\}$
(iii) $C = \{x : x \text{ is a two-digit natural number such that the sum of its digits is } 8\}$
4. Which of the following are examples of the null set
(i) Set of odd natural numbers divisible by 2
(ii) Set of even prime numbers
(iii) $\{x : x \text{ is a natural numbers, } x < 5 \text{ and } x > 7\}$
5. Write down all the subsets of the following sets (i) $\{a\}$ (ii) $\{a, b\}$
6. Write the following as intervals :
(i) $\{x : x \in \mathbb{R}, -4 < x \leq 6\}$
(ii) $\{x : x \in \mathbb{R}, -12 < x < -10\}$
(iii) $\{x : x \in \mathbb{R}, 0 \leq x < 7\}$
(iv) $\{x : x \in \mathbb{R}, 3 \leq x \leq 4\}$
7. Write the following intervals in set-builder form : (i) $(-3, 0)$ (ii) $[6, 12]$
8. Find the union of each of the following pairs of sets :
(i) $A = \{x : x \text{ is a natural number and multiple of } 3\}$ $B = \{x : x \text{ is a natural number less than } 6\}$

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9. If $A = \{x : x \text{ is a natural number}\}$, $B = \{x : x \text{ is an even natural number}\}$, $C = \{x : x \text{ is an odd natural number}\}$ and $D = \{x : x \text{ is a prime number}\}$, find (i) $A \cap B$ (ii) $A \cap C$ (iii) $A \cap D$
10. Which of the following pairs of sets are disjoint
- (i) $\{1, 2, 3, 4\}$ and $\{x : x \text{ is a natural number and } 4 \leq x \leq 6\}$
- (ii) $\{a, e, i, o, u\}$ and $\{c, d, e, f\}$
11. If $A = \{3, 6, 9, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16, 20\}$, $C = \{2, 4, 6, 8, 10, 12, 14, 16\}$, $D = \{5, 10, 15, 20\}$; find (i) $A - B$ (ii) $A - C$ (iii) $A - D$ (iv) $B - A$
12. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$ and $C = \{3, 4, 5, 6\}$. Find (i) A' (ii) B' (iii) $(A \cup C)'$ (iv) $(A \cup B)'$ (v) (A')
13. If $A = \{x : x \text{ is a natural number}\}$, $B = \{x : x \text{ is an even natural number}\}$, $C = \{x : x \text{ is an odd natural number}\}$ and $D = \{x : x \text{ is a prime number}\}$, find (i) $A \cap B$ (ii) $A \cap C$ (iii) $A \cap D$
14. Which of the following pairs of sets are disjoint
- (iii) $\{1, 2, 3, 4\}$ and $\{x : x \text{ is a natural number and } 4 \leq x \leq 6\}$
- (iv) $\{a, e, i, o, u\}$ and $\{c, d, e, f\}$
15. If $A = \{3, 6, 9, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16, 20\}$, $C = \{2, 4, 6, 8, 10, 12, 14, 16\}$, $D = \{5, 10, 15, 20\}$; find (i) $A - B$ (ii) $A - C$ (iii) $A - D$ (iv) $B - A$
16. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$ and $C = \{3, 4, 5, 6\}$. Find (i) A' (ii) B' (iii) $(A \cup C)'$ (iv) $(A \cup B)'$ (v) (A')