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Sets

Student Worksheet

Questions & Working Space

IGCSE Mathematics

Name: _____

Date: _____

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Prepared by

Nikolas Agisilaou

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Note

How to use this worksheet. These questions are built *strictly* on the *Sets* notes: set notation, types of sets and subsets, Venn diagrams, the four set operations, combined expressions and shading, the number of elements formula, three-set problems, and set-builder notation.
Notation reminder. $\in$ (is an element of), $\notin$ (is not an element of), $n(A)$ (number of elements), $\varnothing$ (empty set), $\subseteq$ (subset), $\subset$ (proper subset), $\cup$ (union), $\cap$ (intersection), A' (complement), $A \setminus B$ (difference).
Working space. Ruled lines are provided after each question, and blank Venn diagrams are printed where you need them — write straight onto the diagrams. Always fill a Venn diagram from the overlap outwards, and check at the end that all the regions add up to $n(U)$.
Checking your answers. Full step-by-step solutions, a marking scheme for the exam paper, and a quick answer key are in the separate booklet *"Sets — Solutions & Answer Key."* Try each question honestly before you look.

1 Part I — Topic-by-Topic Exercises

1.1 Sets and Set Notation

Exercise E1 *[Basic]*

Let $A = \{4, 9, 14, 19, 24\}$. State whether each of the following is true or false:

(a) $9 \in A$ (b) $12 \in A$ (c) $24 \notin A$ (d) $n(A) = 5$

Exercise E2 *[Basic]*

Write each of the following using set notation:

(a) the set of distinct letters in the word "GEOMETRY"

(b) the set of even numbers between 3 and 17

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Exercise E3 *[Standard]*

Write each of the following using set notation, and state the number of elements in each:

(a) the set of distinct vowels in the word "EDUCATION"

(b) the set of prime numbers between 20 and 40

(c) the set of factors of 24

Exercise E4 *[Standard]*

A student writes: *"the set of letters in the word BANANA is* $\{B, A, N, A, N, A\}$*"*. Explain the error and write the set correctly, stating n of the set.

Exercise E5 *[Intermediate]*

Let $A = \{x : x \text{ is a multiple of } 6,\ 1 \leq x \leq 40\}$. List the elements of A and state $n(A)$.

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Preview ends here

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