O Level E Maths Tutorial 8: Set language and notation

Syllabus :

• use of set language and the following notation:

Union of A and B	$A \cup B$
Intersection of A and B	$A \cap B$
Number of elements in set A	$n(A)$
'… is an element of …'	$\in$
'… is not an element of …'	$\notin$
Complement of set A	A'
The empty set	$\varnothing$
Universal set	$\mathscr{E}$ * see note below

* Note: The O level exam papers in the past 10 years seem to use ξ (xi) instead for universal set. Common symbols for universal set in textbooks include U and E also. Schools may use something different. Be alert to what the question says or suggests.. For this tutorial, I shall follow this year's (2025) syllabus and use $\mathscr{E}$. Students should follow their teachers in school.

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1. $\mathscr{E}$ = { a, e, g, i, n }
   A = { a, i, n }
   B = { e, g, i }

   Find

   (i) A'

   (ii) B'

• union and intersection of two sets

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2. $\mathscr{E}$ = { a, e, g, i, n }
   A = { a, i, n }
   B = { e, g, i }

   Find

   (i) $A \cap B$

(ii) $A \cup B$

(iii) $(A \cup B)'$

• Venn diagrams

3.

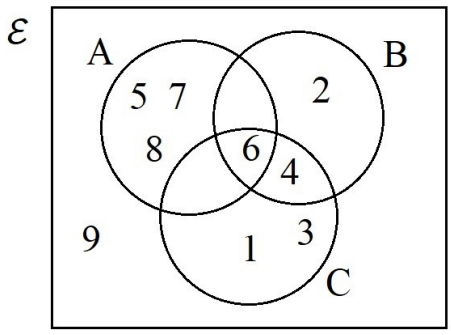

Figure 8-1

Write down the elements the following sets:

(i) $B \cap C$

(ii) $A \cup B$

(iii) $(A \cup B)'$

A is a subset of B	$A \subseteq B$
A is not a subset of B	$A \not\subseteq B$
A is a (proper) subset of B	$A \subset B$
A is not a (proper) subset of B	$A \not\subset B$

4. For each of the following, state if

	A is a subset of B	$A \subseteq B$, iii
	A is not a subset of B	$A \not\subseteq B$, ii
	A is a (proper) subset of B	$A \subset B$, i
or	A is not a (proper) subset of B	$A \not\subset B$. iv ?

(i) $A = \{ a, b, c \}$
$B = \{ a, b, c, d, e \}$

(ii) $A = \{ a, b, f \}$
$B = \{ a, b, c, d, e \}$

(iii) $A = \{ a, b, c, d, e \}$
$B = \{ a, b, c, d, e \}$

Figure 8-2