Notes on Set Language and Notation
(paragraph 1.5 of the specification)

1. Foundation and Higher tiers

Definition: In words, e.g. \{Cats\}, \{Positive integers less than 10\},
\{Multiples of 3\},
or as a list of members e.g. \{2, 4, 6, 8\}, \{chairs, tables\}.

Typical Questions:
- Given the definition of a set, list all the elements (or members).
- Given a list of all the elements of a set, write the definition.

Symbols: \(\mathcal{E}, \emptyset, \epsilon, \cup, \cap\)

Typical Questions:
- Given defined sets \(\mathcal{E}, A \& B\),
  - describe \(A \cap B\),
  - list the members of \(A \cup B\),
  - what is meant by “6 \(\epsilon A\)”?
  - is it true that \(A \cap B = \emptyset\)? Explain your answer.
2. **Higher tier only**

**Definition:** Algebraic, e.g. \( \mathcal{E} = \text{Integers} \), \( P = \{ x : 0 \leq x < 10 \} \)

**Venn diagrams:** Different cases, e.g.

![Venn diagrams](image)

**Symbols:** \( A' \) (the complement of \( A \)), \( \subset \) (“is a subset of”)

**Typical Questions:**
- Given defined sets \( \mathcal{E}, A, B, \) and \( C, \)
  - draw a Venn diagram
  - shade \( A \cup B \cap C' \),
  - list the members of \( B' \cap C \),
  - is it true that \( A \subset B \)?
- Describe a given shaded region in a Venn diagram.
- Draw a Venn diagram in which certain conditions are true.

**Symbols:** \( n(A) \) (the number of members in \( A \)),

**Typical Questions:**
- Given a Venn diagram (e.g. Black animals, Cats, Dogs), with numbers inserted,
  - how many black cats are there?
- Given two or three defined sets, find \( n(A \cup A') \)
- Given \( n(\mathcal{E}) = 23, n(A) = 16, n(B) = 10, n(A \cup B) = 20, \)
  - draw a Venn diagram
  - show the number of members in each region.
- Questions involving three sets, where an equation needs to be set up. See Question 16 below.