Definition 3.31. [1W1] *Given I a non-empty family of indexes and given C_i sets (one for each $i \in I$), we define the* ***intersection***

$$\bigcap_{i \in I} C_i$$

which is the set that contains the elements that belong to all sets C_i (for all $i \in I$).
If only two sets are given C_1, C_2, we usually write $C_1 \cap C_2$ to indicate the intersection, and you have

$$C_1 \cap C_2 \stackrel{def}{=} \{x \in C_1 \cup C_2 \,:\, x \in C_1 \wedge x \in C_2\} \quad ;$$

and similarly when finite sets are given.