Preliminaries

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Sets

Collection of objects called elements. We write $x \in A$ if x is an element of A.

De Morgan's Law

- $$\overline{A \cup B} = \overline{A} \cap \overline{B}$$

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Functions

Definition: Given two sets A and B, a function from A to B is a rule that takes each element $x \in A$ and associates with it a single element of B. In that case we write:

$$f : A \longrightarrow B$$

Given an element x, the expression $f(x)$ is used to represent the element of B associated with x by f. The set A is called the ***domain*** of f. The ***range*** of f refers to the subset of B given by $\{y \in B : y = f(x) \text{ for some } x \in A\}$

Dirichlet's definition of function liberates the term from its interpretation as a type of "formula."