$$A \subseteq B \; and \; B \subseteq A \iff A = B$$

This implication can be used to prove equality of sets.

Some subsets of R are in so frequent use that they bear special symbols, namely:

$$R^+ = \{x : x > 0, x \in R\}, \; R^- = \{x : x < 0, x \in R\}, \; R^* = \{x : x \in R, x \neq 0\}$$

In the same way we may talk about the subsets of $\mathbb{Q}$, $\mathbb{Z}$ and $\mathbb{N}$ (Why $\mathbb{N}^- = \emptyset$? However some authors use $\mathbb{N}^-$ for $\mathbb{Z}^-$. In our notation, $\mathbb{N}^-$ is the set of all negative elements of $\mathbb{N}$, which is the empty set.)

C. Operations with sets

Given two sets A and B, by means of three operations "$\cap$", "$\cup$" and "$\setminus$" we define the three sets, namely

(1) $A \cap B = \{x : x \in A \; and \; x \in B\}$ "A intersection B"
(2) $A \cup B = \{x : x \in A \; or \; x \in B\}$ "A union B"
(3) $A \setminus B = \{x : x \in A, \; x \notin B\}$ "A minus B"

Venn diagrams of these sets are indicated by shaded sets given below: