Precalculus
Transform inequality to interval

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Definition

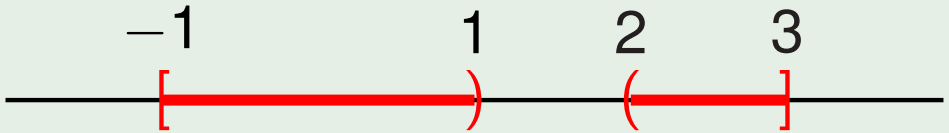
Let A and B be sets.

- The union of A and B is the set consisting of the elements in A and the elements in B, without additional elements.
- The union of A and B is denoted by

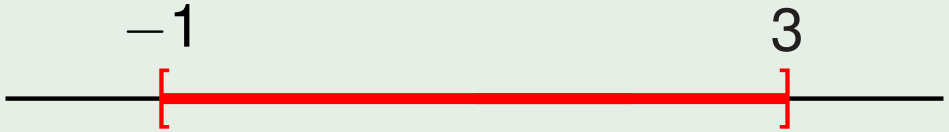
$$A \cup B$$

Example

Plot the points in the set $[-1, 1) \cup (2, 3]$.



Plot the points in the set $[-1, 2) \cup (1, 3]$.



- To draw the points of a union draw both on top of one another.

Definition

Let A be a set. The notation

$$x \in A$$

is read as

- x belongs to A or
- x is an element of A.

Example

Express the statement $-1 < x \leq 2$ using the $\in$ symbol and the interval notation.

$$x \in (-1, 2]$$

Express the statement $x < 0$ or $1 \leq x < 2$ using the $\in$ symbol and the interval notation.

$$x \in (-\infty, 0) \cup [1, 2)$$