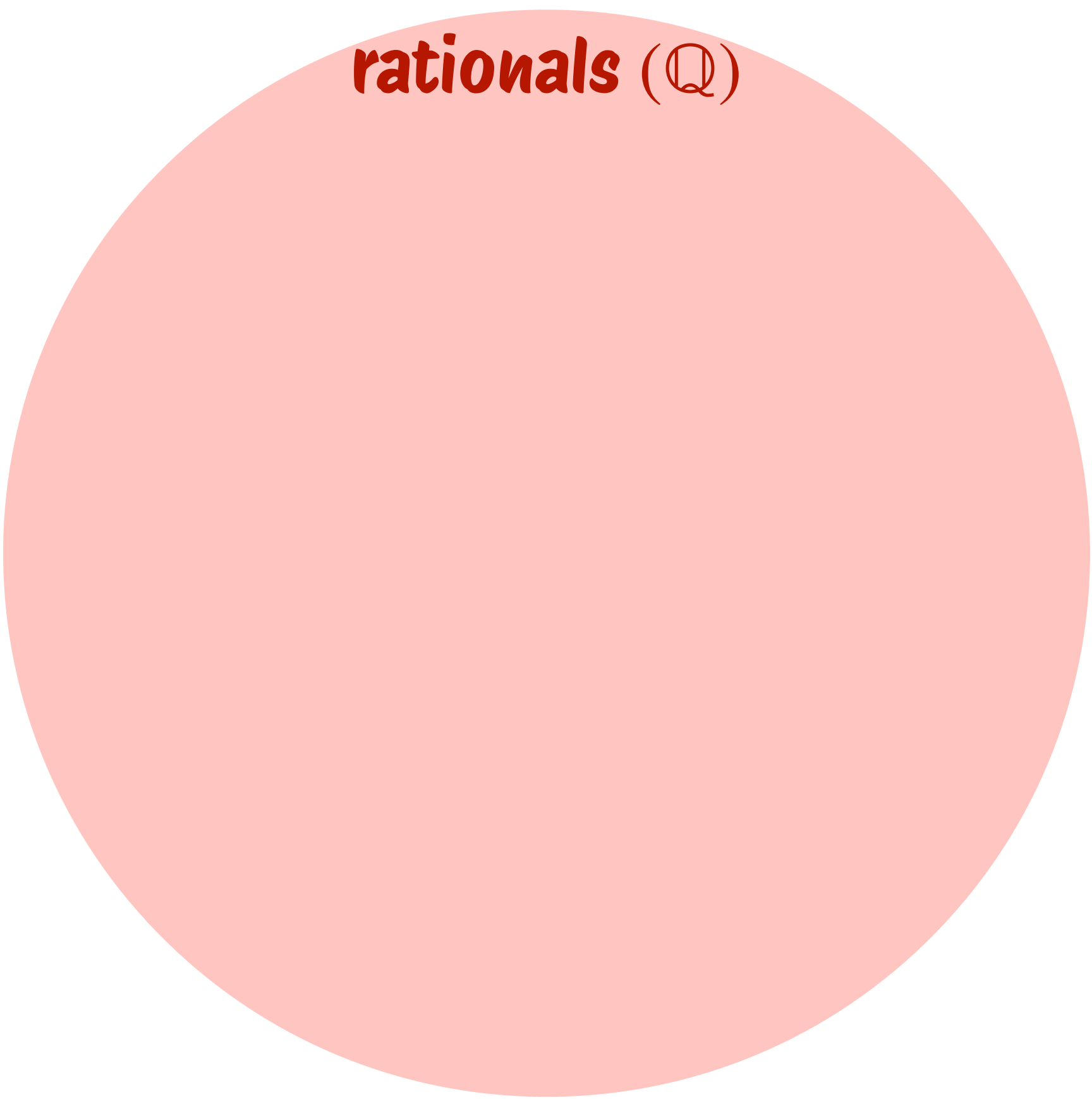
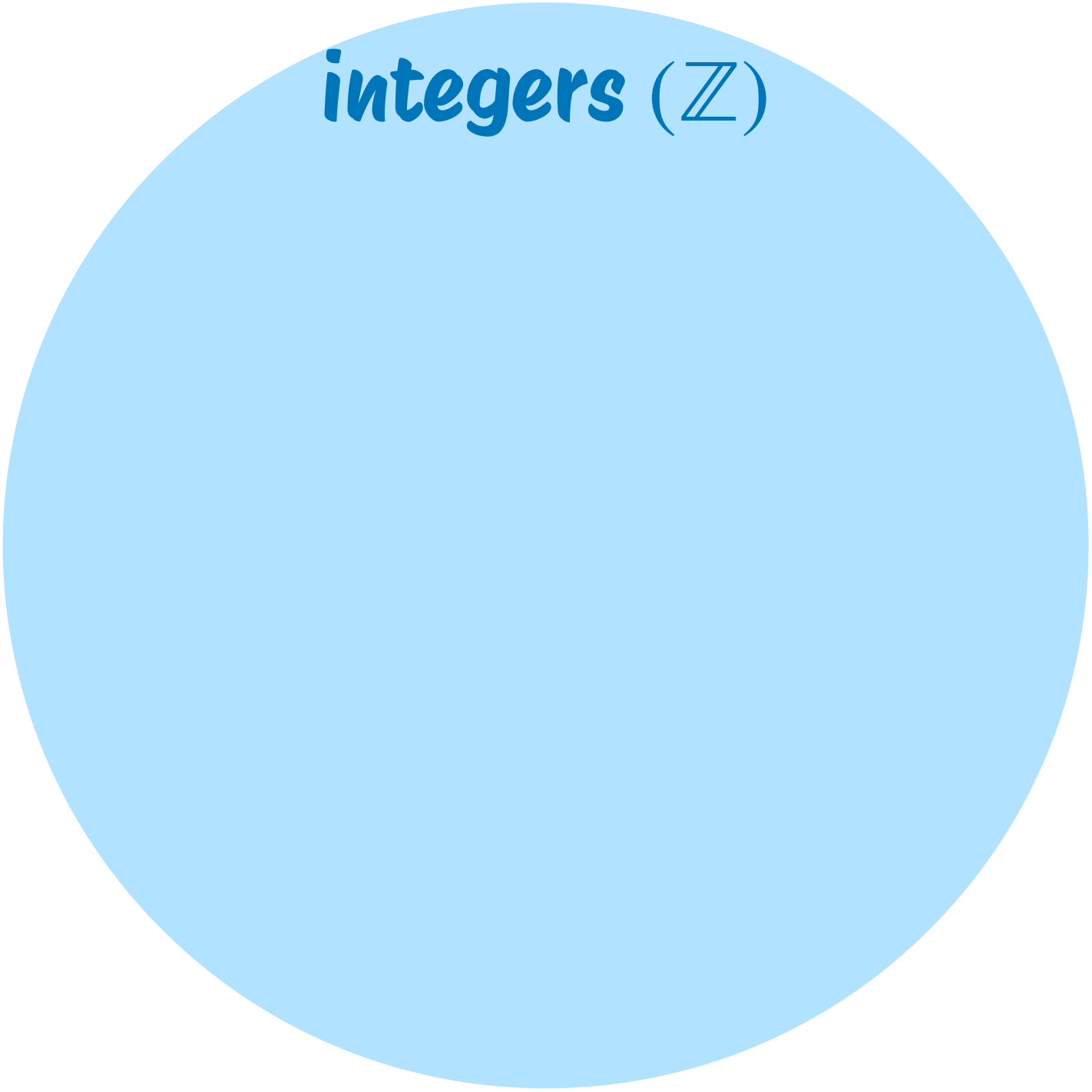
common sets

real numbers ($\mathbb{R}$)


rationals (ℚ)


integers ($\mathbb{Z}$)

whole

irrational

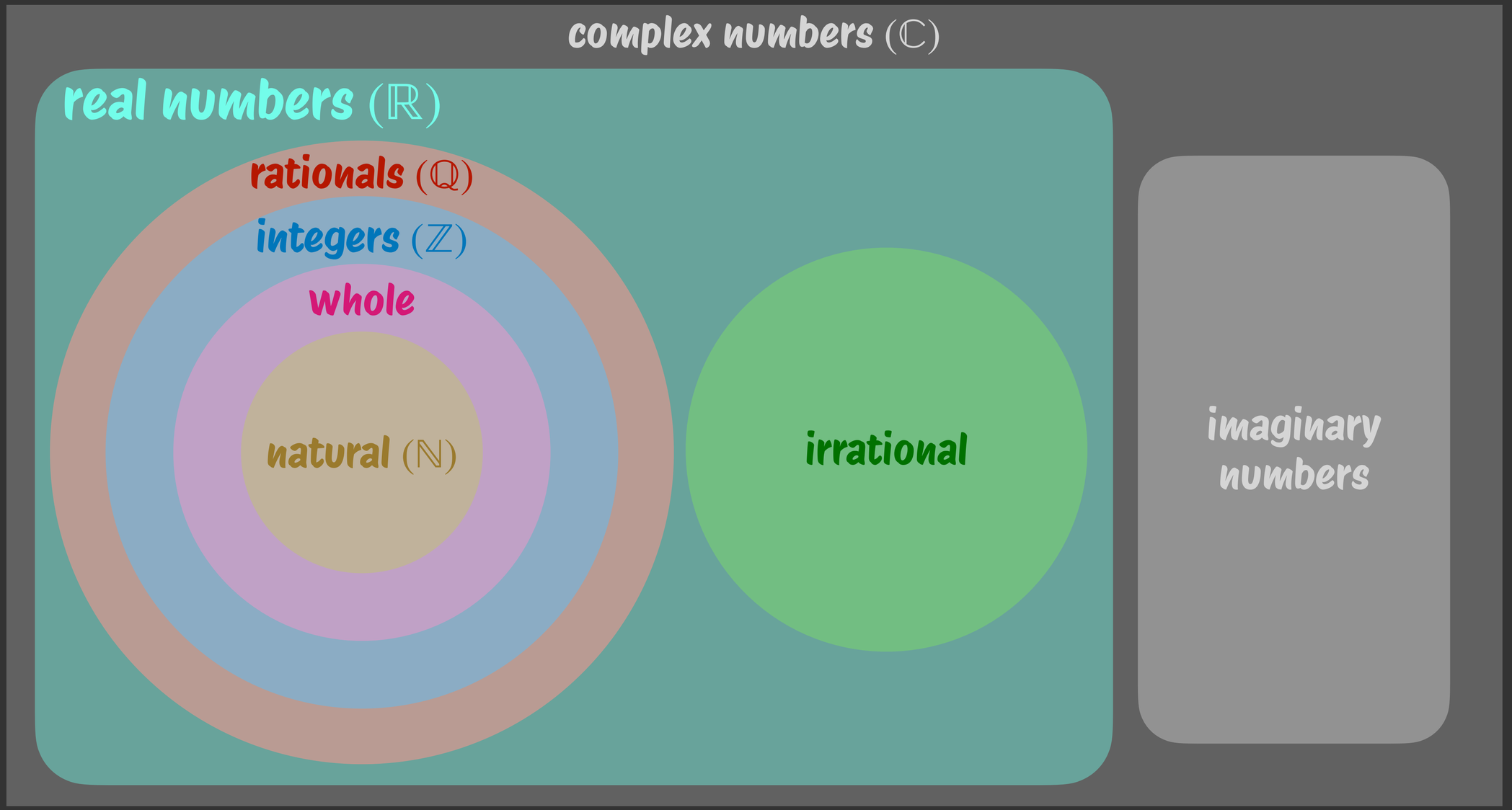

natural (N)

imaginary numbers

complex numbers ($\mathbb{C}$)

$$\mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R} \subset \mathbb{C}$$

common sets



$$\mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R} \subset \mathbb{C}$$

basic operators

- addition $+$
- subtraction $-$
- multiplication $\times$
- division. $\div$
- exponentiation x^a
- *n*th root $\sqrt[n]{x}$
- factorial $!$
- sum $\sum_i x_i$
- product $\prod_i x_i$

set operators

- difference $A \setminus B$
- complement A' or A^c or $\bar{A}$ or $\neg A$
- intersection $A \cap B$
- union $A \cup B$
- mutually exclusive $A \cup B = \varnothing$
- Cartesian product.
  $A \times B = \{(a, b) \mid a \in A, b \in B\}$
- symmetric difference
  $A \oplus B = (A - B) \cup (B - A)$
- partition:
  collection of subsets whose union forms the set