Commonly used sets

$\mathbb{N}$ - the set of natural numbers $\{1, 2, 3, \ldots\}$.
$\mathbb{Z}$ - the set of integers, $\{\ldots, -3, -2, -1, 0, 1, 2, 3, \ldots\}$.
$\mathbb{Q}$ - the set of rational numbers, $\{\frac{p}{q} : \ p, q \in \mathbb{Z},\ q \neq 0\}$.
Examples of rational numbers are:
$-\frac{3}{4}$, $7 = \frac{7}{1}$, $0.21 = \frac{21}{100}$, $\frac{22}{7}$.
$\mathbb{R}$ - the set of real numbers, i.e. {all numbers expressible as finite or infinite decimal expansions}.
Examples of real numbers are:
$-\frac{3}{4}$, 7, 0.21, $\frac{22}{7}$, π, $\sqrt{2}$.
$\mathbb{C}$ - the set of complex numbers $\{x + \sqrt{-1}\, y \ : x, y \in \mathbb{R}\}$.

Set Algebra

$A \cup B = B \cup A$ $A \cap B = B \cap A$	commutativity
$A \cup (B \cup C) = (A \cup B) \cup C$ $A \cap (B \cap C) = (A \cap B) \cap C$	associativity
$A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$	distributivity
$A \cup \emptyset = A$ $A \cap \mathcal{U} = A$	identity
$A \cup \overline{A} = \mathcal{U}$ $A \cap \overline{A} = \emptyset$ $\overline{\overline{A}} = A$	complementarity
$A \cup (A \cap B) = A$ $A \cap (A \cup B) = A$	absorption
$(A \cap B) \cup (A \cap \overline{B}) = A$ $(A \cup B) \cap (A \cup \overline{B}) = A$	minimization
$\overline{A \cup B} = \overline{A} \cap \overline{B}$ $\overline{A \cap B} = \overline{A} \cup \overline{B}$	de Morgan's laws
$A \cup A = A$ $A \cap A = A$	idempotency

Logic

$p \vee q \equiv q \vee p$ $p \wedge q \equiv q \wedge p$	commutativity
$p \vee (q \vee r) \equiv (p \vee q) \vee r$ $p \wedge (q \wedge r) \equiv (p \wedge q) \wedge r$	associativity
$p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$ $p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$	distributivity
$p \vee (p \wedge q) \equiv p$ $p \wedge (p \vee q) \equiv p$	absorption
$\sim (p \vee q) \equiv (\sim p) \wedge (\sim q)$ $\sim (p \wedge q) \equiv (\sim p) \vee (\sim q)$	de Morgan's laws
$p \vee p \equiv p$ $p \wedge p \equiv p$	idempotency

Alternative notations for negation: $\neg p$, $\overline{p}$