Common Shorthand Notations in Mathematics

- **iff**: if and only if
- **s.t.**: such that
- **w.r.t.**: with respect to
- **i.e.**: that is (from Latin *id est*)
- **e.g.**: for example (from Latin *exempli gratia*)
- **w.l.o.g.**: without loss of generality
- **a.e.**: almost everywhere
- **a.s.**: almost surely
- **s.a.**: see also
- **Q.E.D.**: which was to be demonstrated (from Latin *quod erat demonstrandum*), typically used at the end of a proof
- **s.i.**: similarly (sometimes used to avoid repetition in proofs)
- **RHS**: right-hand side
- **LHS**: left-hand side
- **w.p.**: with probability
- **w.h.p.**: with high probability
- $\forall$: for all (universal quantifier)
- $\exists$: there exists (existential quantifier)
- $\subseteq$: is a subset of
- $\supseteq$: is a superset of
- $\subset$: is a proper subset of
- $\supset$: is a proper superset of
- $\cup$: union
- $\cap$: intersection
- ∞: infinity
- $\mathbb{N}$: the set of natural numbers
- $\mathbb{Z}$: the set of integers
- $\mathbb{Q}$: the set of rational numbers
- $\mathbb{R}$: the set of real numbers
- $\mathbb{C}$: the set of complex numbers