Requirements Quality Measures IEEE-830	Correct Unambiguous Complete Consistent Prioritized Verifiable Modifiable Traceable
Correctness	every requirement stated therein is one that the software shall meet
Unambiguous	If an only if it has only one interpretation
Complete	If and only if it describes all significant requirements of concern to the user Don't use etc Don't use TBD Hard to measure
Consistent	If an only if no subset of individual requirements described within it are in conflict with one another
Prioritized	Ranked by importance and stability
Verifiable	If an only if there exists a finite, cost-effective process with which a person or machine can determine that the developed software system does indeed meet the requirement Avoid writing in the negative
Modifiable	if an only if its structure and style are such that any changes to the requirements can be made easily, completely, and consistently, while retaining the existing structure and style of the set

Traceable	iff the origin of each of its component requirements is clear, and there is a mechanism that makes it feasible to refer to that requirement in future development efforts
Other Requirements Quality Measures	Clear Concise Cohesive Feasible Managed
IEEE 29148	A newer, longer doc (~100 pages). Focused on definitions
SWEBOK	Software Engineering Body of Knowledge Focused on descriptions
DO-178C	Avionics Software Standard Based on consequences of failure Full bidirectional traceability
Requirements Maturity Levels	0 - Chaos! No Requirements 1 - Written requirements 2 - Organized 3 - Structured 4 - Traced 5 - Integrated
Change Request Management	Single Channel for Approval Requirements to Design to Code to Test to Maintenance

Why is Traceability so important?	Quality -Can we determine that the req is validated/verified? Impact Analysis -What other reqs are impacted? -What people are affected? -What downstream artifacts are affected?
5 Step CM Process	1. Plan for change 2. Baseline the reqs 3. Change Control Board (CCB) 4. Use a Change Control System 5. Maintain Traceability
Types of Decomposition	Flow-down Refinement Completion
Flow-down Decomposition	- Assigning requirements to appropriate subsystems -An Architectural effort
Refinement Decomposition	-Ensure reqs reach level of specificity where implementation can easily follow -A Requirements effort
Completion Decomposition	-Adding reqs to complete missing back traces from code to reqs -Design or even implementation effort
Requirements specify ____ to build, not ____ to build it	what/how
SMT-LIB	well recognized standard for specifying formal constraints to be solved by an automated constraint solver