# Testing Principles

## What is Testing Principles

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

The **7 Testing Principles** are core guidelines from ISTQB (International Software Testing Qualifications Board) that shape how effective testing is done:

## **7 Testing Principles**

### 1. Testing shows the presence of defects, not their absence

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* Testing can prove bugs exist, but it can’t guarantee there are *no* bugs left.
* Example: Passing tests don’t mean the software is 100% bug-free.

### 2. Exhaustive testing is impossible

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* You can’t test *every* possible input, path, or scenario — it would take forever.
* Instead: Focus on **risk-based** and **priority-based** testing.

### 3. Early testing saves time and money

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* The earlier you find defects, the cheaper and easier they are to fix.
* Example: Finding a requirement mistake in the design phase costs far less than fixing it after release.

### 4. Defects cluster together

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* In most projects, a small number of modules contain most of the bugs.
* Focus testing on the most complex or high-risk areas.

### 5. Beware of the pesticide paradox

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* If you run the same tests over and over, they stop finding new bugs.
* Solution: Regularly review and update test cases.

### 6. Testing is context dependent

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* How you test depends on the type of system (banking app vs. game), risks, and requirements.
* Example: Safety-critical systems need stricter testing than a small website.

### 7. Absence-of-errors fallacy

**# Source**: **Chatgpt (GPT-5-Standard) at [8/12/2025]**

* Even if the software has no known bugs, it can still fail if it doesn’t meet **user needs**.
* Quality means “fit for purpose,” not just “bug-free.”