

# Examples of counterexamples: a book conspectus

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## Abstract

A counterexample is any exception to a generalization. Counterexamples are often used in science, as a means to setting boundaries. In mathematics at large, well-chosen counterexamples may bound possible theorems, disprove certain conjectures. This conspectus is (mostly) meant to be a gathering of related book references.

**Keywords**— Beispiel, contre-exemple, counterexample, example, exemple, Gegenbeispiel, refutation, réfutation

## 1 Impetus, motivation, credits

An X (ex-Twitter) post named “Examples of books on counterexamples”<sup>1</sup> (May 25th, 2023) drew some interest, additions and contributions. It was triggered by Shen Comix’s cartoon in Figure 1, referring to Borwein–Borwein integrals: a series of sums of products of cardinal sines (sinc), whose eight-first terms share the same  $\frac{\pi}{2}$  value, while the ninth term is subtly different [BB01].



Figure 1: Shen Comix: detecting patterns in series, referring to Borwein–Borwein sinc integrals.

As counterexamples are important in science — notably to invalidate arguments, conjectures, theories —, this impetus motivated us to openly share this conspectus of books focused on counterexamples (with one exception), on algebra, (complex and real) analysis, calculus, control, differential equations, logic, operator theory, probability, statistics, topology.

Since publications on counterexamples are numerous (there exists for instance an “Examples and Counterexamples” journal<sup>2</sup>), this document will be amended only as additional book-like references are available. Thanks goes to X users: @GrdCrf, @datagenproc, @latzplacian, @sjaak\_bloom, @eremeticus.

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<sup>1</sup>Tweet “Examples of books on counterexamples” <https://twitter.com/laurentduval/status/1661725617891450880>

<sup>2</sup><https://www.sciencedirect.com/journal/examples-and-counterexamples/>

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