Advanced Mathematics

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Contents

Chapter 1

Terence Tao's

1.1 Tao, 2007. What Is Good Mathematics?

Abstract. "Some personal thoughts & opinions on what "good quality mathematics" is & whether one should try to define this term rigorously. As a case study, the story of Szemerédi's theorem is presented."

1.1.1 The Many Aspects of Mathematical Quality

"We all agree that mathematicians should strive[1] to produce good mathematics. *But how does one define "good mathematics", & should one even dare to try at all?* Let us 1st consider the former question. Almost immediately one realizes that there are many different types of mathematics which could be designated[2] "good". E.g., "good mathematics" could refer (in no particular[3] order) to

1. Good mathematical *problem solving* (e.g. a major breakthrough on an important mathematical problem);

2. Good mathematical *technique* (e.g. a masterful use of existing methods or the development of new tools);

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[1]**strive** [v] [intransitive] to try very hard to achieve something.

[2]**designate** [v] [often passive] **1.** to say officially that somebody/something has a particular character, name or purpose; to describe somebody/something in a particular way; **2.** to choose or name somebody/something for a particular job or position; **3.** (of a symbol) to identify or show something.

[3]**particular** [a] [only before noun] **1.** used to emphasize that you are referring to 1 individual person, thing or type of thing & not others, SYNONYM: **specific**; **2.** greater than usual; special; **in particular** [idiom] **1.** especially or particularly; **2.** special, SYNONYM: **specific**; **of particular note** [idiom] especially interesting; [n] **1.** [countable, usually plural] a fact or detail, especially one that is officially written down; **2.** (**particulars**) [plural] written information & details about a property, business, job, etc.

Bibliography

Bibliography

Tao, Terence (2007). "What is good mathematics?" In: *Bull. Amer. Math. Soc. (N.S.)* 44.4, pp. 623–634. ISSN: 0273-0979. DOI: 10.1090/S0273-0979-07-01168-8. URL: https://doi.org/10.1090/S0273-0979-07-01168-8.