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Michele Friend* (michele@gwu.edu). *The Rigour of Proof*. Preliminary report.

What is a rigorous proof? When is a proof sufficiently rigorous? What is the importance of rigour in a mathematical proof?

To answer the first question, we begin with a comparison between a formal proof and a rigorous proof. A rigorous proof need not be formal, but it needs to be possible, in principle, to make it formal.

To answer the second, we start with the distinction between sufficiently rigorous for acceptance by other mathematicians, sufficiently rigorous to establish a result and sufficiently rigorous to elicit further questions.

The importance of rigour in a proof has several answers. A realist about the ontology of mathematics might well accept a non-rigorous proof since it establishes a truth guaranteed by the ontology of mathematics, in this case rigour is of psychological or epistemological importance at best. In contrast, constructivist philosophers and mathematicians would assert that the term ‘rigorous proof’ is redundant, since for them, a proof lacking in rigour is not a proof, it is at best a purported proof. Pluralists give a third, more nuanced answer. (Received August 19, 2018)