

ZMATH 2015f.00965

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Numerical analysis as a topic in school mathematics.

Cho, Sung Je (ed.), Selected regular lectures from the 12th international congress on mathematical education, ICME 12, Seoul, Korea, July 8–15, 2012. Cham: Springer (ISBN 978-3-319-17186-9/hbk; 978-3-319-17187-6/ebook). 715-729 (2015).

Summary: Concerns about the divide between school mathematics and the discipline of mathematics are known in math education circles. At the heart of the debate is the sense that imperatives in school mathematics differ from those in the discipline of mathematics. In the former case, the focus is on remembering mathematical facts, mastering algorithms, and so on. In the latter case, the focus is on exploring, conjecturing, proving or disproving conjectures, generalizing, and evolving concepts that unify. It is clearly of value to find ways to bridge the divide. Certain topics offer greater scope at the school level for doing significant mathematics; one such is the estimation of irrational quantities using rational operations. This problem is ideal for experimentation, forming conjectures, heuristic reasoning, and seeing the power of calculus. The underlying logic is easy to comprehend. It would therefore be very worthwhile if we could make such topics available to students in high school.

Classification: N40 N50 D30

Keywords: numerical analysis; school mathematics; discipline of mathematics; estimation; irrational quantity; rational operation

doi:10.1007/978-3-319-17187-6_40