

**ZMATH 2015d.00383**

**Raveh, Ira; Koichu, Boris**

**A reference framework for teaching the standard algorithms of the four basic arithmetic operations: from theoretical analysis to task design.**

Ubuz, Behiye (ed.) et al., CERME 8. Proceedings of the eighth congress of the European Society of Research in Mathematics Education, Antalya, Turkey, February 6–10, 2013. Ankara: Middle East Technical University (ISBN 978-975-429-315-9). 3217-3226 (2013).

Summary: The study presented in this paper offers a reference framework for characterizing primary school teachers' mathematical knowledge of the standard algorithms of the four basic arithmetic operations. The framework was first devised theoretically, from mathematical analysis of the algorithms and from past research on knowledge for teaching arithmetic operations with rational numbers. It was then applied to designing tasks for charactering and deepening the teachers' conceptual understanding of the algorithms. The paper contains examples of tasks related to the knowledge of mathematical principles underlying the algorithms, which were tested with a group of 46 primary school mathematics teachers.

*Classification:* D39 F32 D50

*Keywords:* standard algorithm; basic arithmetic operations; mathematical knowledge for teaching; task design