

ZMATH 2006a.00328

Ponte, J.P.; Brocardo, J.; Oliveira, H.

Mathematical investigations in the classroom. (Investigações matemáticas na sala de aula.)

Autêntica Editora, Beolo Horizonte, MG (ISBN 85-7526-103-7). 149 p. (2003).

This book argues that students can carry out mathematical investigations in the mathematics classrooms and discusses the work of the teacher to make it happen. First, it analyses what is the work of the mathematician who investigates a mathematics problem, addressing the notions of questioning, conjecturing, testing, arguing, and proving. It also provided examples and testimonials from well known mathematicians. Then, it indicates how the classroom may be organized to carry out such kind of work, emphasising the steps of introduction, carry out independent work (often in groups), and general discussion. It also discusses in detail the role of the teacher in managing this kind of class. In a separate section discusses how to evaluate students in their investigative work, suggesting different strategies and instruments. Different chapters also discuss mathematics investigations in topics such as numbers, geometry and statistics, providing extended examples taken from actual classrooms. The book ends discussing of the role of investigations in the mathematics curriculum of different countries such as Brazil, France, United Kingdom, United States of America and Portugal. The examples and situations presented in this book come from a long term research programme and illustrate the advantages as well as the difficulties of working in this perspective.

Classification: D40 D30 C70

Keywords: mathematical investigations; classroom dynamics; curriculum; arithmetic; geometry; data analysis (statistics); assessment; teaching-learning processes