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THE FIRST RESOURCE FOR MATHEMATICS

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Math out loud. An oral Olympiad handbook. (English) Zbl 1511.00003

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The oral mathematical Olympiad was conceived at the math department of the Leningrad State University in 1934. Since 2010, The Mathematical Circle at the University of Washington (Seattle) have adopted the idea and organize one every year. The idea is that middle school students (US middle school = grades 6–7 and 8–10 = typically age 10–13 and 13–16) get a small set of puzzle-like problems ordered according to increasing difficulty. They should try to solve as many problems as possible in 3 hours. The student who thinks a problem has been solved, should explain the solution orally to a couple of judges who give immediate feedback. They check whether the correct arguments were used to arrive at a proper proof (note that some students may not be familiar with such a degree of exactness or to giving formal proofs). If the answer or its justification is not correct, the student has to work some more to correct that and come back. At most 3 attempts are allowed to get the solution right. Only a student that has correctly solved 3 of the easier problems, can attempt to solve a problem from a more difficult set.

The authors have been involved in these events and thus collected a lot of experience. After explaining the concept and the advantages of the oral Olympiads, they give in this book the list of problems from the years 2010 to 2019 (7 problems each year) with their full model solutions. Selecting the complexity, the formulation and the model solution is a process that takes much time and many people to arrive at a good mix of problems every year. On top of that, they add for anyone who wants to organize a similar event, a minute script that can be followed step by step during the preparation (selecting problems, collecting judges and proctors, announcing the event etc.), and everything that has to be taken care of during the event itself (welcoming participants and their parents, opening speech etc. till the announcement of the winners). In an appendix, one can find checklists, score sheets, and problems that were solved by many or by few students.

Reviewer: Adhemar Bultheel (Leuven)

MSC:

00-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to mathematics in general
00A08 Recreational mathematics
97U40 Problem books, competitions, examinations (aspects of mathematics education)

Keywords:

mathematical problems; mathematical Olympiad

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