

RUSSIAN SCHOOL MATH. A COMPARATIVE STUDY

Rationale

Russian mathematics of the 20th century (especially after WWII) gave the world many prominent mathematicians and a whole school of research. This was due to the system of selecting mathematically gifted students established by such personalities as Khinchin, Kolmogorov, Arnold and many others, but also by elevating the level of mass mathematics education. (Russian success in science and technology—the Sputnik effect—even caused radical efforts in American education.) But over the last decades, Russian mathematicians are observing a decline of the level of mathematical students, as well as of the level of general mathematical culture.

In attempts to further develop content and methods for Russian school mathematics, we need to better understand the international context and to obtain some momenta from other mathematical communities. These are the reasons for which the Commission on School Mathematics of the Russian Academy of Sciences (RAS) started this study. The Academy is joined in this project by the Moscow Institute of Open Education and the Moscow Center for Continuous Mathematical Education. The Ministry of Education and Science of the Russian Federation confirmed its support for the project. (It took some time considering the budget difficulties of the year 2009.)

The study is so important now also because of the responsibility of its Russian participants to provide the framework for the Russian Unified Examination in math for the year 2010.

From the Russian side, we have a working group including:

S.K. Lando, Dean of Mathematical Faculty at the Moscow Higher School of Economics;

A.L. Semenov, Rector of the Moscow Institute of Open Education and EC ICMI member – the Chair;

A.B. Sossinsky, Professor of the Independent University at Moscow;

V.A. Vassiliev, Chairman of the Commission on School Mathematics of the Russian Academy of Sciences and a member of RAS;

I.V. Yashchenko, President of the Moscow Center for Continuous Mathematical Education;

and a few more university professors and school teachers.

Participants

Members of the EC of ICMI have expressed their general interest in the study. So, we expect that most of them, after reviewing this proposal, will agree to take part in it and constitute an ad hoc group of individuals not officially representing ICMI or their institutions.

Format

The participants will receive in advance of the actual conference via e-mail English translations of the following Russian school math materials:

- national minimal requirements (the so-called “standards”) with sample problems;
- examination materials.

These materials will constitute the general context of the study. Additional materials will be provided by request.

Russian school math, as it was called by Victor Firsov, is “problem-based.” So, we ask the experts to react to a two-part assignment.

The **first part** of our input (Questionnaire 1) for the experts’ reaction is a Demonstration Test for the Unified State Examination in Mathematics (year 2010). We would like to obtain a general assessment by the experts of the level of the test and its comparison with national assessment tests (if any) in their countries. Also we would like the experts to do the same concerning The Final Assessment Test after 6th year (age 11-12).

The **second part** (Questionnaire 2) is a list of topics and sample items. For each topic we ask for an evaluation of its relevance and for each item, an evaluation of its level of difficulty from the perspective of the educational situation in the expert’s country.

Procedure, schedule, financial support

The reflections of experts (in English) on both parts will be collected hopefully in July-August 2009. Then on September 6, 2009, we will have a special session during the EC ICMI meeting in St. Petersburg on the study in which 5-10 Russian experts will be present as well. The international experts participating in the study will receive honorariums to cover their local expenses (plus some extras). Financial support for other EC ICMI members can be discussed separately.

Alexei Semenov
Organization Committee Chairman