

AKSF NEWSLETTER

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Association Kangourou

Sans Frontières



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colleague, scientist, and teacher

Hello and welcome to our Kangourou sans Frontières Newsletter.

I am pleased to write this short introduction to our seventh edition of the AKSF newsletter. The Kangaroo Season has ended in most countries and what a joy it was to celebrate students' achievements. We recognize and congratulate many students and educators that put their hearts and minds into making this 30th edition of Kangaroo a success.

THANK YOU to all the members who found time to write an article or share an idea on something interesting as it relates to Mathematics and Math Kangaroo happenings. Please read the articles below as all are important. There is also sad news regarding the passing of one of our Kangaroo colleagues, Gagik Grigoryan. Gagik passed in April and will be greatly missed by his team in Armenia.

Kangaroo around the world has become so popular that more and more educators are curious about the intrinsic creativity to our questions, and their application in testing and developing Artificial Intelligence (AI). I was contacted by MERL - Mitsubishi Electric Research Laboratories, who, partnered with MIT, are working on efforts at AI-based math problem solving, and invited me to talk at their conference in Paris, France in October. Unsure if my schedule will permit this, regardless, I will keep our community updated on developments. Indeed, our AKSF united efforts paid off in bringing kids to the world of AI's engagement in mathematics. The link to their workshop here.

> <https://wvlar.github.io/iccv23/index.html>



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Summer break is coming, and we all deserve it. At the same time, I want to remind all AKSF members that during these summer months we should not forget the member obligations below. Starting this year, we made the dates simple to remember:

- 1. Register for the 2024 AKSF Annual Meeting (June 1 – July 31)**
- 2. Submit the Annual Report (June 1 – August 31)**
- 3. Propose Math Kangaroo 2024 questions (June 1 – August 31)**

In order to register for the meeting, submit your reports, or propose questions use our internal website here: <https://support.aksf.org/>.

I look forward to receiving your feedback regarding this newsletter and hearing from new members that have not written before to propose a topic for the next AKSF newsletter.

Wishing you a wonderful summer,

*Joanna
AKSF Newsletter Editor in Chief*

News from The President

M e i k e A k v e l d

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Dear Kangaroo friends,

“Greetings to all of you from the International Kangaroo Association, AKSF. As we embark on another year of service and outreach, I am honored to address our global community of passionate and dedicated members. AKSF has a long and proud tradition of promoting educational excellence, fostering creativity, and inspiring young minds across the world. We believe that every child has the potential to achieve greatness, and we are committed to helping them realize that potential through our programs and initiatives.

Over the past few years, we have achieved some remarkable milestones as an organization. We have expanded our outreach efforts to reach more students in more countries, and we have continued to develop innovative programs that inspire and engage young learners. From our Kangaroo Math and Kangaroo Science contests to our Kangoeroe Kwis and Kangourou Sans Frontières events, we have provided countless opportunities for students to showcase their skills and discover their passion for learning. As we look ahead, I am excited to share my vision for the future of AKSF. I believe that our organization has the potential to make an even greater impact in the world, by expanding our reach, developing new partnerships, and continuing to innovate and evolve our programs and initiatives. To achieve this vision, we will need the support and participation of all our members. I encourage you to get involved in our upcoming projects and events, and to share your ideas and insights with our leadership team. Together, we can continue to inspire and

engage young learners across the world, and build a brighter future for all.

Thank you for your continued support and dedication to AKSF. I look forward to working with you in the months and years to come.”Did you enjoy reading this? Well, in case you did, I have to disappoint you, this was not written by me, but by an AI (artificial intelligence,

<https://chat.openai.com/>) by prompting it to write the presidents’ article for the newsletter of AKSF and explaining what AKSF was. Quite scaring, right? Well, I tried a bit more and fed it some Kangaroo questions of this year’s papers. Let’s have a look:

Question 20, of the Cadet paper of 2023: The sum of 2023 consecutive integers is 2023.

What is the sum of digits of the largest of these integers?

Of course we phrased this as a MCQ, but I gave I as an open question to the AI. Here is the answer: “Let’s start by using the formula for the sum of an arithmetic sequence, which is: $S = (n/2) * (2a + (n-1)d)$

where S is the sum of the sequence, n is the number of terms in the sequence, a is the first term, and d is the common difference between terms.

In this problem, we know that the sum of 2023 consecutive integers is 2023. We can let the first of these integers be x , and since there are 2023 of them, the last integer will be $x + 2022$.

So, we have: $2023 = (2023/2) * (2x + (2023-1)*1)$

Simplifying this equation, we get:

$$2023 = 1011 * (2x + 2022)$$

$$2x + 2022 = 2023/1011 \quad 2x = (2023/1011) - 2022 \quad x = [(2023/1011) - 2022]/2$$

Since x is the first of the 2023 consecutive integers, the largest of these integers will be $x + 2022$. So, the largest integer is:

$$x + 2022 = [(2023/1011) - 2022]/2 + 2022$$

We can simplify this expression and find the sum of its digits as follows:

$$[(2023/1011) - 2022]/2 + 2022 = [(2023 - 2022*1011)/1011]/2 + 2022 = (-1009/1011)/2 + 2022 = -1009/2022 + 2022/1 = 1013.5$$

The largest integer is 1013.5, but since this is not a whole number, we need to round up to the nearest integer, which is 1014. The sum of the digits of 1014 is $1 + 0 + 1 + 4 = 6$.

Therefore, the sum of digits of the largest of the 2023 consecutive integers is 6.”

Very plausible, except... simply wrong as the answer is 4, as our own solution shows in a few lines: AKSF Solution: Using only positive consecutive integers, i. e. 1..2023, their sum is way too big, so the sequence must start with negative numbers, such that many of them cancel out. Equally balanced $-1011..1011$ yields 0 as sum. Just shifting this block one over leads to $-1010..1012$, where $-1010..1010$ cancel out and 1011, 1012 with sum 2023 are left over and $1 + 0 + 1 + 2 = 4$.

So what's the lesson learned here? I don't know what it is like in your country, but here in Switzerland, and at my institution the ETH Zurich, AI is constantly in the center of discussion and it seems to be unclear where AI in general and AI in education in particular is heading in the future and how quick this future will catch up with us.

I personally think these developments are exciting but need to be followed critically. AI will be (or already is) part of our life and hence it should also be part of our education. We need to prepare our students to be fit for the future and therefore they will need to learn how to work with AI and put it to their advantage.

And here I think Kangaroo fits in perfectly well. Kangaroo questions are not standard text book exercises: We train problem solving skills, we train logical thinking, we train thinking out of the box. All of this can be done without AI, but also with AI. An interesting experiment would be to give the above AI solution to our students and ask for criticism. That would surely demand some critical thinking skills from them, not to mention analytic and logical arguing. So I am convinced that we, as mathematicians and educators, do not need to worry about AI. It's not a threat to our profession but a challenge. Let's face this challenge!

Please enjoy reading our Newsletter and share it with your team and all others interested in our activities. Thanks to all the authors who contributed to this edition of the Newsletter and thanks to Joanna and Özgür and his team for editing and setting the Newsletter.

Take care and stay healthy!

Yours,

Meike

AKSF President

STEM Education in Saudi Araba

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In the realm of Science, Technology, Engineering, and Mathematics (STEM) education, an inspiring evolution is underway within the Kingdom of Saudi Arabia. I'm honored to play a pivotal role in this change, serving as a Professor in applied mathematics and a foremost STEM educator. My impact echoes across several government bodies, chiefly the King Abdulaziz and His Companions Foundation for Giftedness and Creativity (Mawhiba). Through my dedication and innovative strategies, I've catalyzed significant progress in the Kingdom's educational fabric, establishing a trajectory towards innovation and excellence.

My position as Director of the esteemed King Abdullah University of Science and Technology (KAUST) Academy has offered the opportunity to lead numerous continuous learning initiatives that encourage national development. Our aim at the KAUST Academy extends beyond the conventional mandate. We strive to exert a positive influence in various regions of the Kingdom, thereby creating a cascade of educational improvement.

My collaboration with Mawhiba remains a key aspect of this mission. This esteemed foundation and I share a common goal: to cultivate talent, creativity, and innovation among gifted Saudi students. Our partnership has resulted in invaluable opportunities for these students to represent Saudi Arabia on the global stage by participating in international competitions.

Consider the Kangaroo competition as an example of these initiatives. This event is an esteemed international challenge aimed at stretching the mathematical skills of students worldwide. In the recent 2023 edition, students across Saudi Arabia reaped a stunning success, securing a total of 545 medals. This outstanding achievement comprised 98 gold, 168 silver, and 279 bronze medals, outclassing over half a million participants globally.

Furthermore, we've seen a consistent rise in participation in the Bebras competition, an international test focused on computational thinking and digital skills. These competitions, enabled by the joint efforts of my team and I, play a crucial role in promoting STEM education and encouraging a culture of intellectual exploration and innovation within Saudi Arabia.

Though we've made tremendous progress, the journey to enhance STEM education is continuous. Working in synergy with Mawhiba and the KAUST Academy, my resolve remains strong to advance STEM education in sync with the Kingdom's fast-paced economic evolution. We remain steadfast in our mission to groom the next generation of STEM leaders, charting a promising future for Saudi Arabia as a front-runner in worldwide scientific and technological progress.



Without a doubt, the impressive leaps made in STEM education in Saudi Arabia, thanks to our collective and unwavering efforts, have laid a strong foundation for the nation's future. As we continue to press forward, a new generation of innovators, scientists, engineers, and mathematicians will take shape, setting the Kingdom on a course to become a global leader in STEM education. The story of my pioneering work, central to these achievements, continues to unravel, imprinting a profound influence on STEM education within Saudi Arabia and echoing throughout the world.



Sultan Albarakati

SCRIPTA MANENT

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The purpose of this column is to discuss, periodically, proverbial phrases from philosophy, literature or history that are relevant to Mathematics. In each case we explore the origin, meaning, and use of maxims which mathematicians and intellectuals often like to refer to.

«Μη είναι βασιλικήν ατραπὸν ἐπὶ Γεωμετρίαν»

“There is no royal road to Geometry”

We will discuss the history and meaning of the phrase in the title which comes from ancient

Greek Mathematics. Actually, we have two versions of the story. One attributes the phrase to the great Geometer Euclid (~300 BC), the author of the influential Elements, who allegedly said it to the Macedonian Greek King Ptolemy I Soter, who was at that time was the ruler of Egypt. The second version of the story attributes the phrase, actually a variant of it, to the lesser known Menaechmus (380-320 BC) who was nevertheless an outstanding mathematician from the school of Plato, who allegedly said it to Alexander the Great when the later was in his youth, before he became King of Macedonia. In each of the two versions the authors that give us the information, namely Proclus (412- 485 AD) and Joannes Stobaeus (flourished at the 5th century AD), respectively, lived more than 700 years later than the event they describe, a long time ahead, which may explain the existence of two versions of the story. We discuss the two cases separately, starting with Euclid. Recall that Greek Mathematics begins at about 600 BC, with Thales. The next 300 years saw great mathematicians such as Hippias, Pythagoras, Archytas, Hippocrates, Eudoxus, Theaetetus, Menaechmus and Dinostratus, to name a few, all of whom lived before Euclid. Unfortunately, absolutely no substantial mathematical text survives from the period prior to Euclid. Of course, we have fragments and several pieces of information from later authors about this productive period, but no text. In fact, there was a large body of Mathematics, mainly Geometry and Number Theory, already discovered by this time. There is ample evidence for this. For example, ancient Greek mathematicians who lived before Euclid had already written histories of the Mathematics of their time. Such is the History of Geometry by Xenocrates (396-314 BC), another one by Eudemos (370-300 BC) and yet another one by Theophrastus (371-287 BC).

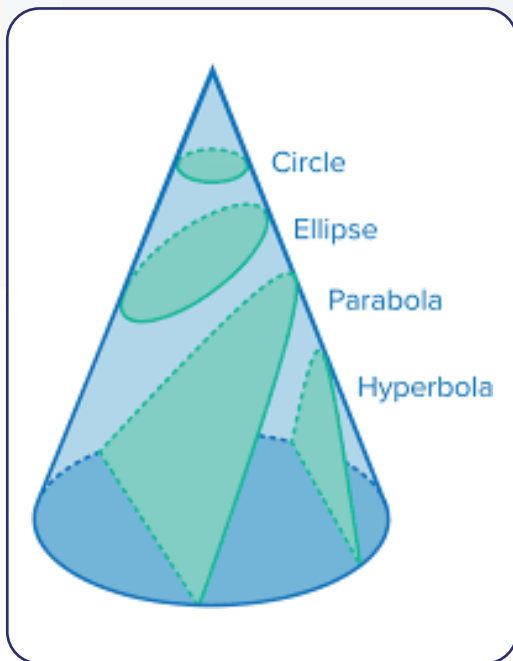


Detail from the fresco “The School of Athens” (1511) by the Italian painter Raphael showing Euclid with a compass, teaching students.

All three were great scholars. For example, Xenocrates was the Head of Plato's Academy after the death of Plato, and Eudemus was the head of the School of Aristotle after the death of the Master. It is clear that scholars of such proportions would not have written Histories of Mathematics if they did not have something substantial to say. But fate has been harsh also to these texts as none of them survives other than few extracts drawn from them by later scholars. On such is the Commentary of Proclus. This is an interesting text whose aim is to discuss and comment on Euclid's Elements analysing the axioms and propositions of Book I of the great work. In the process of doing so Proclus quotes a wealth of historical facts regarding the status of Geometry before Euclid, most of which are known to us only through this particular text. Then he talks briefly about Euclid himself stating some of his biographical details, unfortunately minimal, and the anecdote about the phrase we are discussing. Other sources too give us very little information about Euclid's life. All we know is that he studied at Plato's Academy in Athens and at around 300 BC he was invited to Egypt, to manage the Library of Alexandria. Before quoting Proclus' text let us recall some background historical facts that are necessary in order to understand the passage.

In mid 4th century BC Greece felt the impact of one of its groups, Macedonia. Its King Philip II (382- 323 BC) conquered a number of Greek city states and his son Alexander the Great (356-323 BC) went on to create an Empire that included Egypt in the south and extended to the East as far as Taxila in the Indian subcontinent. In Egypt Alexander the Great founded in 331 the city of Alexandria, which gained great fame in the years to come. After Alexander's death his generals divided, in chaotic circumstances, the Empire into smaller parts and ruled as Kings. Egypt went to Ptolemy I Soter (367-282 BC). The succession of the Macedonian Greek rulers of Egypt, all named Ptolemy (and the Queens were named Cleopatra or Berenice) lasted for two centuries until the conquest of Egypt by the Romans. The first King, Ptolemy I Soter, commissioned the famous Museum, which means the house of the Muses (who were goddesses of literature, science and the arts in Greek mythology), that is, an institution of learning. Annexed to it he built the famous Great Library of Alexandria, acts that had immense impact on Mathematics and Literature. At that stage Ptolemy invited Euclid to Alexandria to become the first librarian of the Great Library. It seems that during an encounter of the King with Euclid, presumably because the former found Geometry a difficult topic, he asked the mathematician if there was a shortcut to this branch of knowledge. This is how Proclus in his Commentary describes the event (I translate from the Greek original):aaaThis man [Euclid] lived in the time of the first Ptolemy; for Archimedes, who lived closely after the first Ptolemy mentions Euclid, and further they say that Ptolemy once asked him if there were a shorted way to study Geometry than the Elements, to which he replied that there was no royal road to Geometry.

Meneaechnus. Let us now come to the second version of the story which involves Meneachmus who lived a denegationt earlier than Euclid. He is not as well-known as the great geometer but he was certainly an outstanding mathematician. He is briefly discussed in the historical part of Proclus' Commentary mentioned above in relation to the distinction between theorems and problems. In spite of the fact one of his discoveries has been studied continuously throughout the History of Mathematics, up to the present day, his name has undeservedly fallen into oblivion. Namely, he is the discoverer of the three conic sections, the ellipse, the parabola and the hyperbola. Recall than since the discovery of Analytic Geometry these three curves are defined on the plane via their geometric properties.



However, the original definition by Meneachmus was three dimensional, as the curves obtained by appropriately intersecting the surface of a cone by a plane. He used his results for solving the problem of duplication of a cube. Recall that this problem is not solvable using ruler and compass but the ancient geometers devised ingenious solutions using other curves. Such is the case of Meneachmus. In fact he gave two elegant solutions, one using two parabolas and another using a parabola and a hyperbola. Concerning the phrase we are discussing, here is what the ancient sources tell us. Our information comes from a wonderful text by Johannes Stobaeus, who was the compiler of a valuable anthology of extracts, maxims and wise sayings from a wide range of ancient Greek authors, especially philosophers, orators, historians and poets. It preserves fragments from works which might otherwise be unknown today. The anthology is known by its Latin name *Florilegium*. There, in Book II, it

refers to the anecdote we are discussing. This time the King involved was Alexander the Great in his youth, and presumably Meneachmus was his tutor. At one stage the future king asked his teacher if there was a shorter way to Geometry. Here is a translation of the full extract: Alexander asked the geometer Meneachmus if there is a shorter way to learn Geometry. At which he answered "O king, for traveling through the country there are private roads and royal roads, but in Geometry there is one road for all."

M i c h a e l L a m b r o u

The Kangaroo is on safari!

G r e g B e c k e r

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Africa has many young minds, eager to develop, with many looking to test their problem solving skills on an international stage. Due to circumstance, Africans are naturally excellent problem solvers, overcoming challenges on a daily basis in novel and innovative ways, even if the problems are less likely to come from a mathematics textbook. Every year, literacy, numeracy and school participation rates improve, and more and more Africans have affordable access to the internet (in particular the mobile internet, and for many the Starlink satellite internet service) and access to internet-enabled devices (smart phones, tablets and computers). We see this being the perfect time to lay the foundations that will allow African AKSF members to capitalise on the anticipated improvements in access over the coming decade to deliver free/low-cost mathematics events and competitions.

Since my presentation at the 2022 AKSF Annual Conference, progress has been made on growing the AKSF footprint in Africa. Three African countries participated in the maths competition for the first time in late 2022, all using the MyTutor.chat platform to participate online, and in 2023, eight countries will participate using the MyTutor.chat platform, with the learners either participating online or offline. None of these countries had participated this time last year!

We have been applying the lessons we learn from running the events last year, and give countries a starter-pack containing guidance on

things like event administration, format and promotion and marketing strategies. (We keep experimenting, researching and exploring the strategies that have worked elsewhere .) We noted the need for an offline participation option to complement the online solution, and will facilitate both formats where learners can participate online or offline, although offline participation will require a teacher to download a pack containing the questions, answer sheets, marking guides, solutions and instructions for their learners.

1. *Ghana, South Africa, Uganda*
2. *MyTutor.chat is a service offered for free to help grow participation in maths competitions, and to help increase performance by offering preparation and practice opportunities. We offer questions in the form of a conversation, although it is a very simple question engine more like a chatbot than a large language model, hence the name.*
3. *Botswana*, Ghana, Kenya, Malawi*, Namibia*, Rwanda*, South Africa, Uganda * They have submitted AKSF applications, and are piggybacking on their neighbours participation in 2023*
4. *Promotion of the survey*
5. *Cameroon, Eswatini, Gambia, Lesotho, Liberia, Mauritius, Seychelles, Sierra Leone, Tanzania, Zambia and Zimbabwe*

We are building on our experience of running an event related to the Soccer and Women's T20 Cricket World Cups, and look to continue running some events with the primary purpose being a fun maths competition experience, something to build on.

We look forward to learning from other countries, learning more from our 2023 events, and applying these lessons as the AKSF footprint expands within these countries, and across the continent: there are many English speaking countries in Africa filled with young minds well suited to MyTutor.chat's English platform, and with a French and Portuguese speaking tour guide, the maths kangaroo could continue its African safari!

Look out for the African themed questions that we will be proposing for next year's event, and the sports themed competitions we will run running around the - Netball World Cup (hosted in South Africa in July) and the - Rugby World Cup (which is being hosted in France in September and October 2023).



Eager African learners participating in maths competitions using MyTutor.chat

The Spelling of Palestine

B a n a n H a s a n A l B a n a
e e c t l . j o @ h o t m a i l . c o m



The Kangaroo competition is one of the largest competitions held around the world. About 6 million students participate annually. The important objectives are encouraging students to master knowledge in mathematics, applying mathematical concepts and linking them to their daily lives. Since 2021 Palestine competition received a great welcome from schools and parents. Many Palestinian families have connections in Jordan. This is why it was natural for Kangaroo to expand to Jordanian's families. One of the factors is the use of the same language and the proximity of the countries' locations. Additionally, both countries use the same free of charge platform called EECTL. This platform is helpful in fulfilling our mission "math for all". It is also a slogan of the Kangaroo organization. Kangaroo in Palestine and Jordan is available for free to all students, which helps to spread the competition and reach tens of thousands of students. Students from Palestine and Jordan enjoy and not fear the mathematics. Kangaroo makes math alive and loved by many students who took the test for the very first time. Many students come back year after year and compete with the promise to receive medals and awards that Palestine and Jordan Kangaroo organizers provide. The center called Khabraa El-Taleem that organizes the competition is active in both countries on the same level, in Palestine and Jordan. Students in both countries spread the culture of Kangaroo to all their peers with a great success.

And here is an example of how closely the residents of both countries work together to take part in Kangaroo. Mayar is a third-grade student from Jordan, and Jamal is also a third-grade student, but from Palestine. They are cousins. On Kangaroo Day, 3/17/2023, they took the test in their own town and their own school. After announcing the results in the two countries on 4/5/2023, Jamal was among those who won a silver medal and Mayar won a bronze medal. Throughout the 6-month period preceding the international test day, students shared solutions of previous years' kangaroo questions and competed in solving experimental tests. The test material was available on the EECTL platform for free in both Arabic and English. It was a way to help students to prepare for the 2023 Kangaroo exam. Mayar's mother tells us that her daughter entered this challenging competition with her cousin. She and the family in Jordan and Palestine motivated them to win a medal. They promised to hold a special party for both of them in order to share the joy of winning together. Jamal's mother also expressed her joy at her child's achievement. The test was difficult but introduced interesting new mathematical ideas. There are many stories like this one, where two students, friends, family members take part in the kangaroo test from Jordan and Palestine.

Jordan and Palestine's students enjoyed the award ceremonies this year. The results of the 2023 Kangaroo were as follows: Jordan won 9 gold medals, 18 silver medals, and 47 bronze medals. More than 2,000 male and female students from dozens of schools from all over the Kingdom participated. 539 of them qualified to take the 2023 exam. Palestine won 23 gold medals, 43 silver medals, and 86 bronze medals. More than 14,000 male and female students from dozens of schools from all over Palestine participated. Of these, 2,714 male and female students have qualified to take the 2023 exam. The ceremony to receive medals and prizes for the winners in Jordan and Palestine are arranged each year as a one common celebration for both countries together. The winners are offered various scholarships in mental arithmetic courses. Additionally, math camps are organized for both countries' winners. These awards are given to the winners of the gold medals in Jordan and Palestine. Most awards are sponsored by the Ministry of Education. The ministry makes sure to train the winning students in twenty-first century skills, Kangaroo models and STEM competence. The cooperation of Jordan and Palestine's Kangaroo has always been very close and will continue to grow throughout the years.



ANNOUNCEMENTS

1 *Online-Workshop: "Preparing Perfect Problem Proposals"*

Date: Saturday, 4 May, 2024

Time: tba

Speakers: tba

Language: English

Abstract:

In this workshop, successful problem proposers will describe their methods for developing new problems to be suggested for the Kangaroo competition. Topics to be discussed may include, but are not limited to, the following:

- Where do I get ideas for my problems?
- How do I make my problems interesting? (creating graphics, defining a problem context, developing appropriate distractors, ...)
- How do I create nice and engaging figures?

The workshop is meant for anyone currently involved in problem creation for the Kangaroo competition and eager to improve their problem development techniques, as well as anyone with no experience but interested in becoming involved in the problem creation process. You are welcome to invite colleagues from your countries to participate, especially if they have very little experience in problem writing, or even none at all!

Registration:

how to register will be announced together with more details at the AKSF General Assembly in October.

2 *Research Survey*

AKSF member countries have differing objectives and as a result, they organise and promote their national events in various ways. These different objectives, promotion and marketing strategies, and test formats - in combination - have resulted in different participation levels and growth rates.

The AKSF board has worked with Greg Becker to develop a 30-question survey to better understand what different countries are doing, with the hope of trying to better understand what strategies have been demonstrated to be the most effective, and what has proven to be less so.

We will share the findings in the upcoming newsletter, and hopefully more countries will learn from others and look to implement the most effective interventions.

<https://forms.gle/KdEcGAbxBy88ycev7>

In remembering of our friend, colleague, scientist, and teacher



It is with great sadness that we inform you of the passing of our beloved teacher, colleague, and scientist Gagik Grigoryan. A person who has made a great contribution to the development of education and science in Armenia. A person without whom we would not have had Ayb, a new quality of education, and an unprecedented educational movement in Armenia that has transformed the lives of many students, colleagues, and friends.

It was Gagik Grigoryan's influence, dedicated work, and passion for education that united Ayb's co-founders around the idea of Ayb, aiming to create a globally competitive education system in Armenia, based on critical thinking, innovation, and creativity. With these principles, Gagik inspired his students to science and infected them with education. And aspired by those principles, Ayb founders formed and implemented the vision and goal of the Ayb educational movement, as a gratitude for the contribution of their beloved teacher, Gagik Grigoryan, in their lives and on the path of self-realization.

Gagik Grigoryan stood at the origins of Ayb from the very beginning, joining the foundation team in 2008 and participating in the development of innovative educational projects. Since the founding of Ayb School, 2011, he had also taught at the school, continuing to educate and inspire with science 11 generations of Ayb, about 500 students in total.

He was also the authorized representative of the Kangaroo international competition in Armenia organized by the Ayb Educational Foundation since 2008. It is thanks to him that this competition came to Armenia and Artsakh and created a huge math movement with 445,152 participants.

Gagik Grigoryan was not only a dedicated teacher but also a scientist whose contribution to the education system in Armenia is invaluable. He is a candidate of physical and mathematical sciences. He graduated from the Moscow Institute of Physics and Technology, was a member of the jury of international olympiads and headed the Armenian teams of physics olympiads. Under his leadership, Armenia won dozens of medals at international physics olympiads. Since 1983, Gagik Grigoryan worked at PhysMath School as a physics teacher and researcher. He is the author and co-author of 35 scientific articles and over 30 textbooks and manuals. Gagik Grigoryan was a true embodiment of the values on the basis of which Ayb was created and has been guided to this date. He inspires us all to strive for excellence in everything we do. His legacy will continue to illuminate the education system of Armenia.

Rest in peace, dear Gagik. Your contribution will always be remembered, for your students will cherish and keep the torch of knowledge burning. We express our sincere condolences and support to Gagik Grigoryan's family and friends and share in the sorrow and sadness of this loss.

Important dates for the season 2023/2024

Kangaroo day Thursday, March 21, 2024



AKSF report 1. 6. 2023 — 31. 8. 2023

Report refers to the Kangaroo contest 2023.



Study problems 1.10. 2023 — 5. 11. 2023

Participants can study problems and
Group Chairs can preselect questions.



Download proposed
problems 1.10. 2023 — 20. 4. 2024

Proposed problems are available
for download.



Select problems 15. 10.2023 — 11.10.2023

Problems preparation during Annual Meeting.



Download selected
problems 18. 10.2023 — 20. 4. 2024

Problems selected at the Annual Meeting
are available for download.



Finalize problems 16. 10.2023 — 3. 11.2023

Problems are being finalized
(language and style improvements, picture corrections, ...).



Download finalized
problems 6. 11. 2023 — 20. 4. 2024

Final versions of problems
(including latex files and all the figures) are available for download.