

TANGENTS



INSIDE THIS ISSUE

KMC 2014 Award Ceremonies	1
Meet the Grand Prix Winners	1
Math Olympiad Prep Course	2
4 Ideas to Promote KMC	2
KMC 2014 Diary	2
Problems from OMK 2013	3
KMC and HOTS	3
From the Editor	4
Beaver.my Website Launched	4

∞

TANGENTS is the official publication of Kangaroo Math Competition Malaysia. It is published three times a year and distributed free of charge.

FOUNDER & EDITOR-IN-CHIEF
M. Suhaimi Ramly

CONTRIBUTORS
Ahmad Nubli Muhammad
M. Aqil Kamarudin
M. Izhan Noorzi
M. Iznan Shamsuddin
Nurhayuni Zolkeply

PUBLISHED BY
KMC Malaysia Secretariat
c/o Ardent Educational
Consultants Sdn. Bhd.
No. 100-1, Jalan 2/23A,
Taman Danau Kota,
53300 Setapak, KL.

PRINTED BY
Percetakan Zafar Sdn. Bhd.
Jalan 4/10B, Spring Crest
Industrial Park, 68100 Batu
Caves, Selangor.

KMC 2014 AWARD CEREMONIES

Five award ceremonies were held around the countries to honour the medallists of KMC 2014.

The KMC award season kicked off from the East Coast, with a ceremony celebrating winners from Kelantan, Terengganu and Pahang, held at a hotel in Kota Bharu, Kelantan.

This was followed by another ceremony held in Sungai Petani, Kedah, and

another one held the week after at Melaka.

After the sojourn to the Northern and Southern states, the KMC was brought back to the nation's capital.

The majestic Dewan Seri Endon in Putrajaya was the venue where more than 400 students from KL, Selangor, Putrajaya and NS received their hard-won KMC medals.

The last, but no less special, award ceremony was held in Kuching, for East Malaysian winners.

The KMC Secretariat would like to thank all the officers from the State Education Departments (JPN) who attended and officiated at our events.

Congratulations to all the winners of KMC 2014!

∞

Meet the Grand Prix Winners: Jasmine Kaur (Pre Ecolier) & Tam Li Zhang (Ecolier)



The KMC team managed to catch up with these brilliant youngsters after they received their prizes in Putrajaya.

Jasmine Kaur of Maz International School PJ (pictured above, with her mother) said that she is

“super happy” and “can’t believe” that she won the Pre Ecolier top prize in KMC 2014.

Jasmine practiced for KMC by doing exercises from the books and worksheets that her mother prepared for her. She hopes to join more math contests in the future, spurred by her success in the KMC.

The Grand Prix winner for Ecolier, **Tam Li Zhang**, (pictured below, with his father) took part in KMC 2014 under Brainbuilder – Dr Fong Maths, a math learning center.

Li Zhang, who attends SJKC Lee Rubber, said that

his secret to winning is his hard work, even to the extent of sacrificing a bit of play time.



His father duly agreed; he said that Li Zhang did a lot of preparation for the KMC.

He added that all the hard work pays off, since Li Zhang stands a good chance of admission into a good secondary school with his KMC credentials.

∞

KMC ALBUM



Pn. Hjh. Rosnah Wan Ibrahim from JPN Kelantan giving the officiating speech at the KMC award ceremony in Kota Bharu



Jubilant teachers and students after receiving their awards, in Sungai Petani, Kedah



Deputy Director of JPN Melaka, Tn. Hj. Mohd Rashid Mohd Sidek, flanked by KMC directors, during the award ceremony in Melaka



The winners from Brainbuilder - Dr. Fong Maths, in celebratory mood, with their awards



Deputy Director of JPN Sarawak, Tn. Hj. Abdul Rahman Bolhassan, receiving a token of appreciation from KMC for gracing the award ceremony in Kuching, Sarawak

Math Olympiad Prep Course: December '14

Are you really passionate about mathematics, and want to challenge yourself beyond school math? Do you want to excel in national and international math competitions?

KMC with ArdentEdu is proud to present the school holiday Math Olympiad Prep Course (MOPC), for students and teachers.

In MOPC, students will be coached to excel in national and international contests, even for those with little or no background in math olympiad.



This course will be taught by experienced trainers who had participated in the International Mathematical Olympiad (IMO) and have been involved in training the IMO national team.

Date: 15-16 Dec. 2014 (Session 1) & 17-18 Dec. 2014 (Session 2).

Venue: 100-1, Jalan 2/23A (Off Jalan Genting Klang), Taman Danau Kota, KL.

Time: 9.15am to 4.30pm.
Fees: RM600 for 1 session, RM800 for both.

To get more details about the course, or to register, visit the MOPC page at mopc.ardentedu.com.

REGISTER FOR
KMC 2015 BEFORE
31 DEC 2014 & GET
A DISCOUNT* OF

10%

*conditions apply, see p.4

4 Ideas to Promote KMC to your Students

We at KMC understand that it is challenging sometimes to get students excited about a math contest, so here are some ideas:

- 1. Place Posters.** Placing KMC posters around your school will get students talking. Why Kangaroo? What does kangaroo has to do with math? Once they start asking questions, then you may explain to them what KMC is about. You may download some KMC poster designs from our website.
- 2. Start a small math group.** Get 3-5

interested students to meet weekly to do math problems and bring good food (e.g., pizza). In no time, the group will grow to 30-50 students, guaranteed.

3. Invite the KMC team to give a talk. Yes, we'll do it for free, but only for schools in KL, Selangor & Putrajaya. Email us to book.

4. KMC merchandise. We have a collection of KMC merchandise (gift bag, plush toys, t-shirt) for students. Visit our website for more details.

KMC '14 Diary

6 February: KMC Talk (SK Seri Bintang Utara, KL)

8 February: KMC Teachers Workshop (B-Suite Hotel, Penang)

19 February: KMC Talk (SMK Taman Desa, KL)

20 March: KMC Contest Day @ K-Day

15 May: KMC results announced

4-28 August: KMC Award Ceremony (held at Kelantan, Kedah, Melaka, Putrajaya and Sarawak)

13 September: KMC Trainer Program and KMC Student Workshop held during Fiesta 123 Lompat (SMK USJ 12, Selangor)

15-18 September: Math

Olympiad Prep Course (KL)

1 November: KMC 2015 registration open

12-16 November: AKSF Annual General Meeting (San Juan, Puerto Rico)

Want to invite the KMC team to give a **free talk** at your school? Email us! (Only for schools in KL, Selangor & Putrajaya.)

Selected Problems from OMK 2013

Welcome back to the Tangents problem corner.

The OMK (Olimpiad Matematik Kebangsaan) is a national-level math contest for Malaysian secondary school students.

Here we present the OMK 2013 paper in the Bongsu (Form 1 & 2) category.

① Given a quadrilateral ABCD such that $AC = BC = BD$. The diagonals AC and BD are perpendicular. If $\angle BAC = 70^\circ$, what is $\angle BDC$ in degrees?

② In a football league, each team plays every other team once. Each win is worth 3 points, each draw 1 point, and each loss 0 point. It is known that at

the end of the league, 10% of the teams end up with 0 point. Find the number of teams in the league.

③ There are four integers greater than 1 which are equal to the sum of the cubes of their digits. Three of them are 153, 370 and 407, since $153 = 1^3 + 5^3 + 3^3$, $370 = 3^3 + 7^3 + 0^3$ and $407 = 4^3 + 0^3 + 7^3$. What is the fourth integer?

④ How many ways are there to choose 3 different numbers in $\{1, 2, 3, 4, 5, 6, 7\}$ such that we can form a triangle with side lengths equal to these numbers?

Note: 3, 2, 4 and 4, 3, 2 are counted as one choice.

⑤ The sum of three

primes equals one-fifth of their product. Find the sum of squares of these primes.

⑥ Mimi wrote the integers 1, 2, 3, 4, 5, 6, ..., 2013 on a whiteboard. Then she erased all multiples of 5. If she takes the product of all the remaining numbers on the whiteboard, what is the last digit of the product?

∞

The problems are quite challenging, but doable if you think hard about them. Happy solving!

Answers on page 4

THERE ARE 10 TYPES OF PEOPLE: THOSE WHO KNOW BINARY AND THOSE WHO DON'T.

KMC & Higher Order Thinking Skills (HOTS)

What is Higher Order Thinking Skills (HOTS)?



In Bloom's Taxonomy, HOTS is defined as the higher levels of cognitive functions (i.e., analyze, evaluate, create) as opposed to lower level cognitive functions (i.e., remember, understand and apply), collectively known as Lower Order Thinking Skills, or LOTS.

Participation in KMC can develop HOTS among students, because most of the problems that appear in KMC test students' skills of analysis, while allowing more advanced students to experiment and play around with extensions of the problems (evaluation and creation).

Although most of the KMC problems require higher thinking to be solved, at the same time, KMC problems have a distinctive, playful character and visual appeal that attract students.

The international problem composers of KMC have many years of experience

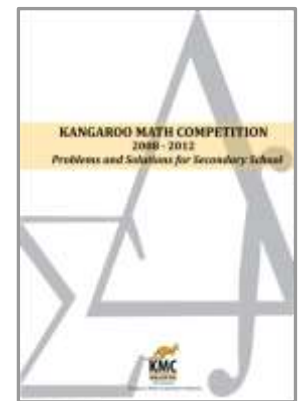
with mathematics contests, ensuring that the difficulty level of KMC remains suitable for its target audience, while at the same time ensuring that students are challenged and stimulated.

KMC Malaysia, together with ArdentEdu, have designed a module for primary and secondary school teachers, "Bengkel Penggubalan Soalan HOTS untuk Subjek Matematik", to coach teachers on how to set problems that fulfil HOTS requirements. Do contact us to organize this workshop at your school.

∞

BOOKS FROM KMC

To help teachers and students prepare, KMC have published two collections of past papers: *KMC 2008-2012: Problems and Solutions for Primary Schools* (RM15.00) and *KMC 2008-2012: Problems and Solutions for Secondary Schools* (RM15.00)



For those who would like further challenge, we also have some math olympiad training books, such as *Basics of Math Olympiad: Volume 1-4* (RM25 per volume, RM85 for all volumes).



We are in the process of publishing the solution booklets for KMC 2013 & 2014.

To browse our catalog of mathematics books, or to purchase our books, go to <http://kangaroomath.com/my/books>.

IMPORTANT DATES FOR KMC 2015

1 NOVEMBER 2014

- Registraton for KMC 2015 opens

31 DECEMBER 2014

- Deadline for early registration

27 FEBRUARY 2015

- Deadline for normal registration

26 MARCH 2015

- KMC Contest Day @ K-Day

1 MAY 2015

- KMC 2015 Results

EARLY REGISTRATION

The fee for Early Registration is **RM27.00** per participant (10% off the normal fee).

Those schools who would like to perform Early Registration must get the KMC registration form submitted and payment deposited in our account by **31 December 2014**.

For Early Registration, you may submit the list of participants later. Only the number of participants is needed. Any addition later would be charged at the normal fee rate.

Early Registration fees cannot be refunded.

ANSWERS (page 3)

- | | | |
|------|------|-------|
| 1 65 | 2 10 | 3 371 |
| 4 13 | 5 78 | 6 6 |

FROM THE EDITOR



The KMC team have already started work for KMC 2015. Going into our third year, our priority is to improve efficiency in running the contest. In particular, we plan to announce the results by 1 May, complete all the award ceremonies by mid-June, and send out all the certificates and prizes by the end of June. We are very excited for KMC 2015, despite our expectation of a busy year ahead.

KMC 2015 registration is open on 1 November 2014. Register early & get a 10% discount!

Looking back at the first two years of KMC, the most important lesson we learned is how mathematics contests like the KMC can help develop Higher Order Thinking Skills (HOTS), a concept which feature prominently in the Malaysia Education Blueprint 2013-2025. The KMC team will continue to work closely with the relevant stakeholders to help achieve the objective of improving mathematical thinking among our students.

M. Suhaimi Ramly

Beaver.my Website Launched

The Beaver Informatics Contest (BIC) official website at <http://beaver.my> was launched at the KMC Award Ceremony in Putrajaya.

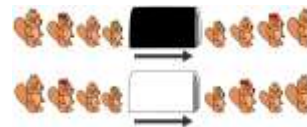


The new website contains information about the BIC, as well as some sample problems, taken from Beaver contests from other countries.

Sample Problem: Tunnels

There are two kinds of tunnels in Bebras Land. When beavers enter a black tunnel one after

the other, they come out in reverse order. When beavers enter a white tunnel one after the other, when they come out only the first and the last beaver are interchanged:



A beaver family goes through this three tunnels:



In what order are they arranged when they come out of the last tunnel?

About BIC

The BIC is part of the international Bebras effort that was started in Lithuania ("Bebras" means

beaver in Lithuanian). *Bebras* aims to promote interest in informatics, information technology & computational thinking to all students.

Interested? Sign up at <http://beaver.my/contact> for updates.

CONTACT US

Phone: 03 41317672

Fax: 03 41490572

Email: info@kangaroomath.com.my

kangaroomath.com.my

Web: kangaroomath.com.my

FB: [/KangarooMathMalaysia](https://www.facebook.com/KangarooMathMalaysia)

Twitter: [kangaroomathMY](https://twitter.com/kangaroomathMY)

Published by: Ardent Educational Consultants Sdn. Bhd., No. 100-1, Jalan 2/23A, Taman Danau Kota, 53300 Setapak, KL.

Printed by: Percetakan Zafar Sdn. Bhd., Jalan 4/10B, Spring Crest Industrial Park, 68100 Batu Caves, Selangor.