IMO POST 2015

THE 56TH INTERNATIONAL MATHEMATICAL OLYMPIAD
JULY 4-16, 2015 IN CHIANG MAI, THAILAND

DAILY NEWSLETTER

JULY 10, 2015

ISSUE 02

A Brief Guide to CHIANG MAI

The province of Chiang Mai is one of the world's top tourist destinations. It plays host to several million tourists each year, many of whom are repeat visitors. In 2014, it was ranked 24th in the travel review site TripAdvisor's "25 Best Destinations in the World". As many (if not most) of you are visiting Chiang Mai for the first time, we have prepared a brief guide to help you get to know the city and province better.

Wat Phra Singh

Chiang Mai ("New City") was founded in 1296 by King Mengrai the Great as the new capital of the Lanna Kingdom, which was centered in what is now Northern Thailand from the 13th to the 18th Centuries. Chiang Mai borders Myanmar to the North and in the 16th Century it came under Burmese control and remained so for some 200 years. Chiang Mai became part of Siam (Thailand) in 1775, after the Siamese king helped drive out the Burmese occupiers. Over 200 years later, you can still see Burmese influence in the Chiang Mai's traditional arts, architecture and even cuisine. Today, Chiang Mai is Thailand's second largest province and the economic and cultural capital of the northern region. It has a population of some 1.6 million, nearly one million of whom live in Chiang Mai Metropolitan Area. A university town and a major tourist hub, Chiang Mai is a vibrant modern city, but at the same time it has preserved its cultural heritage and ways of life.

Wualai Walking Street (Saturday Market), located in an old silversmith community just outside the city wall, is best known for authentic northern silver and lacquer wares and unique handicrafts. It is open from 4 pm to 10 pm. Tha Pae Walking Street (Sunday Market) is open every Sunday from 7 pm to midnight. Starting at Tha Pae Gate, the entire length of Ratchadamnoen Road turns into a big outdoor market offering everything from crafts to traditional clothes to northern Thai food. A walking tour of the Wat Ket area by the Ping River is another great way to explore Chiang Mai's rich heritage. This over-500-year-old neighborhood has Buddhists, Christians, Muslims and Sikhs living side by side peacefully. The neighborhood Buddhist temple, Wat Ket (home to a community museum), and Sikh temples are open to visitors. Tourists from other parts of Thailand flock to Warorot Market, the city's central market, to buy souvenirs for people back home. Also known as Kad Luang, the market has hundreds of stalls selling fresh produce, ready-made food and packaged food products. Just walking around the place is enough to make you hungry! Nimmanhaemin Road, near Chiang Mai University, is the city's trendiest shopping street. It attracts tourists as well as local creative types with its myriad shops and chic cafes. Even if you don't plan to do much shopping, you will still have plenty to see and do. Animal lovers will enjoy a visit to Chiang Mai Zoo & Aquarium. For something a bit different, try the Night Safari, located just outside the city in Hangdong District.

Chiang Mai has a lot more to offer in terms of attractions and things to do. Read all about them in our upcoming issues!

Wat Chedi Luang

Photos: Bundit Chailaipanich

IMO TIMELINE AND MILESTONES

Since its 1959 inception, the International Mathematical Olympiad has grown into a truly global competition. As the 56th official contest begins, let's take a look back at the IMO's important milestones:

-1959 First-ever IMO held in Romania with 7 teams taking part, all from Eastern Europe
-1964 Mongolia became the first country outside Eastern Europe to enter the competition
-1965 Finland sent a team, the first country in Western Europe to do so
-1971 Cuba joined the competition as the first team from the Americas
-1974 Vietnam entered a team, the first Southeast Asian country to do so
-1975 USA joined the competition
-1977 Algeria became the first country from Africa to compete in the IMO
-1979 Brazil joined the competition as the first team from South America
-1980 The only year to date in which an official contest has not been held (two unofficial IMO events were held in its place)
-1981 Australia sent a team, making this the first competition where all continents were represented
-2015 A total of 107 teams and 5 observing countries are registered to take part, setting a new record

Host Countries for IMO
1959 Romania
1960 Romania
1961 Hungary
1962 Czechoslovakia
1963 Poland
1964 Union of Soviet Socialist Republics
1965 German Democratic Republic (East Germany)
1966 Bulgaria
1967 Yugoslavia
1968 Union of Soviet Socialist Republics
1969 Romania
1970 Hungary
1971 Czechoslovakia
1972 Poland
1973 Union of Soviet Socialist Republics
1974 German Democratic Republic (East Germany)
1975 Bulgaria
1976 Austria
1977 Yugoslavia
1978 Romania
1979 United Kingdom
1980 no IMO
1981 United States of America
1982 Hungary
1983 France
1984 Czechoslovakia
1985 Finland
1986 Poland
1987 Cuba
1988 Australia
1989 Federal Republic of Germany (West Germany)
1990 People's Republic of China
1991 Sweden
1992 Russian Federation
1993 Turkey
1994 Hong Kong
1995 Canada
1996 India
1997 Argentina
1998 Taiwan
1999 Romania
2000 Republic of Korea (South Korea)
2001 United States of America
2002 United Kingdom
2003 Japan
2004 Greece
2005 Mexico
2006 Slovenia
2007 Vietnam
2008 Spain
2009 Germany
2010 Kazakhstan
2011 The Netherlands
2012 Argentina
2013 Colombia
2014 South Africa
2015 Thailand
Future Hosts
2016 Hong Kong
2017 Brazil
2018 Romania
2019 United Kingdom

Source: imof.co (the official website of the International Mathematical Olympiad Foundation)

¡Hola!

¡Nosotros somos el equipo de IMO de Puerto Rico! Hello! We are the Puerto Rico IMO team! Puerto Rico is a small island nation of 3.5 million people in the Caribbean. Our names our Francisco, Gabriela, and Alejandro, and we'd like to introduce ourselves. You might notice that 2 of us look alike - that's because Alejandro and Francisco are twins (no, we don't totally hate each other). We like to think of Gabriela as our adopted triplet. We've bonded through math competitions as we've had the honor of representing Puerto Rico together before. We have various interests outside of math like volleyball (Gabriela), American football/basketball and Model UN (Francisco), and aviation and band (Alejandro). Our favorite math topics are geometry (Gabriela), number theory (Alejandro), and combinatorics and statistics (Francisco). We're excited to have reached the ultimate stage of math competitions and hope we can meet you all! !Nos vemos!

PUERTO RICO

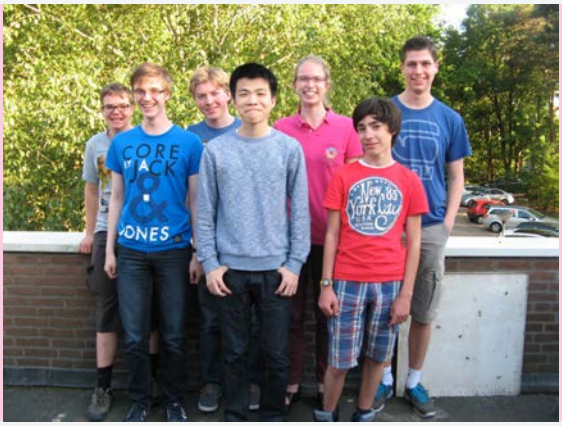
Hi everyone,

We are the Dutch team, from left to right Tim, Bob, Dirk, Yuhui, Eva, Levi and Mike. There are seven of us, because apart from the six official team members, we have Levi with the encouraging prize. The reason for the encouraging prize is that a younger student can experience the IMO and use this experience for the next IMO. Well, there is another reason: with ten people (1 leader, 2 deputy leaders and 7 students) the plane tickets can be bought earlier. We are Dutch after all...

Another thing that is fun to explain is why we wear orange shirts at the ceremonies. The reason is that the father of our nation is called Willem of Orange, and our royal family still has this name, and because of this name, it is a Dutch tradition to wear orange when the Netherlands participates in a competition.

--

Looking forward very much to coming to Thailand!



THE NETHERLANDS

Greetings from Math Team Canada

Yan (Bill) Huang (West Windsor-Plainsboro High School South), Michael Pang (Fort Richmond Collegiate), Zhuo Qun (Alex) Song (Phillips Exeter Academy), Kevin Sun (Phillips Exeter Academy), Alexander Whatley (North Houston Academy of Science and Mathematics) and Jinhao (Hunter) Xu (University Hill Secondary School) will represent Canada at the 56th IMO. Canada has participated in the IMO since 1981. The team leaders for Math Team Canada are Leader Jacob Tsimerman (University of Toronto), Deputy Leader Lindsey Shorser (University of Toronto) and Observer B James Rickards (University of Cambridge). The team is excited to have the opportunity to participate in the IMO and is looking forward to meeting other teams from around the world. "It is a great opportunity to work with fellow high school prospective mathematicians," said Alex Song.

"I've heard a lot about Thailand from my classmates and I'm looking forward to absorbing the culture."

CANADA

Merhaba!

We bring warm greetings from Turkey. As the Turkish IMO team, we cannot wait to meet all the contestants from around the world who share our interest in Mathematics. IMO is a great organization that promotes studying and learning Mathematics. We hope that this will be an unforgettable experience for everyone and the friendships we make will continue after the contest. Good luck and have fun!

"Herkese iyi şanslar" from Ali, Ahmet, Abdullah, İbrahim, Furkan and Feyza.

TURKEY

IMO POST 2015 NEWS

July 8 was a big day with the vast majority of our 900-plus contestants arriving in Chiang Mai a day ahead of the Opening Ceremony.

The Hong Kong team declared their readiness to compete in IMO 2015. To date, Hong Kong has won 7 golds, 45 silvers and 75 bronzes from 27 IMO competitions. Next year, the island city will serve as the host of the 57th IMO competition.

Deputy Leader Lee Chun Chew said that Hong Kong is happy and ready to take the role of IMO host. This year's contestants were selected from Hong Kong's 100 top-scoring students, and with over 2 years of intensive preparations, he hopes that the team will perform better than it did at last year's competition.

Team Belgium landed at 9:15 am looking fresh and happy and proceeded to take selfies to record their first moments in Chiang Mai. Then they proudly posed with the big Belgian Flag they had brought all the way from home.

Finland

To date, male contestants have vastly outnumbered their female counterparts at every IMO. But Finland's Ella Tamir does not believe that her gender would work against her. "I'm ready for the competition," said Ella. "I don't feel under pressure and don't think my gender will be a problem. I can be friends with anyone."

Japan

Team Japan, led by Yasuhara Asai, landed in Chiang Mai at 9:15 pm. Contestant Takuya Inoue, who is competing in his second IMO, said: "I'm excited to be competing in the IMO again. I hope that my preparations over the past year will help me to perform better than I did in South Africa, where I won a bronze medal." He added that "Team Japan is 100 percent ready and we will do our best."

The French team arrived around 9:50 am and immediately caught the eye of our Meet & Greet Team because they had brought along an IMO teddy bear! Contestant Vincent Bouis confided that he had spent the last 3 years preparing for the competition but still felt a little nervous as the big day drew near.

Team Brazil probably had the farthest to travel of all contestants, as Brazil is literally on the opposite side of the world from Thailand. Team member Carlos Yuzo Shine said: "It took us 46 hours to travel from Brazil by plane, with a stopover in Germany, so we are a bit tired from the trip. Also, the weather here is different. Brazil at this time of year is windy and quite cool, whereas it is hot in Thailand." About his team's preparations, Carlos said that they went through 3 rounds of prepping, in April, May and June, which made them quite confident that their IMO 2015 performance will make Brazil proud.

Slovenia

Slovenian contestant Luka Lodrant reported that his team had spent the last 3 months preparing themselves by doing practice exams 1-2 times a month and daily during the last week before their departure for Chiang Mai.

The Macedonian team smiled for the camera shortly after their 11:35 am arrival. Sanja Simonovikj, the only lady on the team, said that this is her first visit to Thailand. She was excited about the competition and intended to do her best.

At 9:40 am, Team Austria arrived after a 15-hour plus journey. Team member Bruno Perreaux, who is visiting Thailand for the first time, said that his team is well prepared for the competition, which is probably why they all looked very relaxed despite their long trip. Bruno was surprised, however, at how hot it is in Thailand.

At 11.20 am, the Singaporean team arrived with their good luck mascot. Team members expressed excitement about the competition, as this is their first IMO. They also mentioned their interest in Thai culture and traditions and their plan to try authentic Thai food. Have fun exploring them all!

Team Bangladesh arrived around 9:40 am. Contestant Sazid Akhter Turzo said: "I visited Thailand with my family last year and had a memorable time. This trip is different because I'm not here as a tourist and my family isn't here with me. But I'll do my best."

The Thai team arrived around noon. Thailand comes into its 26th IMO having won a total of 14 golds, 45 silvers and 43 bronzes from past competitions. Contestant Sucharn Wiwatsetthachai said: "As we are the host country this year, I feel a bit of pressure to do my best and not let my country down. To prepare for the competition, we attended a prep camp hosted by the Institute for the Promotion of Teaching Science and Technology (IPST) in Bangkok for about 3-4 months, where we did lots of practice exams. The camp ended only 7 days before we traveled to Chiang Mai. My hopes and expectations are for all 6 members of the Thai team to win gold medals, which will make the whole country proud and make ourselves proud too.

Sucharn's teammate Sivakorn Suanmoo said: "I don't feel any pressure because I have prepared myself well for the competition. I will do my best and I am more than 100 percent confident about that."

Marijana Vujadinovic and Andela Sarkovic of Team Serbia are also well prepared for the competition. Marijana said that she had been taking practice exams for 6 years and spent the last month before her departure for Thailand doing intensive preparations.

Suthinee Thaeppunkulngan, the head of the IMO 2015 Liaison Team, assured everyone that the team is giving their all to ensure a warm welcome and happy stay for all contestants and participants. The ability to communicate fluently with contestants and a service mind were the most important qualities the team looked for during its recruitment process, said Suthinee. "These last few days, we have had status meetings and prep sessions daily. The welcome process has run smoothly and all parties involved have been working well together. As hosts, we are dedicated to offering Thai hospitality and friendship and to showing contestants that we Thais know how to stay in a good mood even when the going is serious." As if to prove her point, Suthasinee ended her comments with a smile.

UNSOLVED PROBLEMS IN MATHEMATICS

There are many unsolved problems in mathematics, some of which have defied solution for decades or even centuries. The most famous ones include Hilbert's Problems, a list of 23 problems proposed by David Hilbert in 1900; Landau's Problems, 4 simply stated problems proposed by Edmund Landau in 1912; and the Millennium Prize Problems selected by the Clay Mathematics Institute in 2000.

The Millennium Prize Problems are perhaps the most high-profile, as a prize of $1 million is offered to the person who solves each problem. One of them, the Poincaré Conjecture, has been solved by Russian mathematician Grigori Perelman who declined to receive the prize saying that other mathematicians had contributed to the solution over the years.

Poincaré conjecture: Every simply connected, closed 3-manifold is homeomorphic to the 3-sphere.The remaining Millennium Prize Problems include:

P versus NP: For all problems for which an algorithm can verify a given solution quickly (i.e. in polynomial time), can an algorithm also find that solution quickly?

Hodge conjecture: For projective algebraic varieties, Hodge cycles are rational linear combinations of algebraic cycles.

Riemann hypothesis: Nontrivial zeros of the analytical continuation of the Riemann zeta function have a real part of ½ (The Riemann hypothesis is also one of Hilbert's Problems).

Yang-Mills existence and mass gap: Prove that for any compact simple gauge group G, a non-trivial quantum Yang–Mills theory exists on $\mathbb{R}^4$ and has a mass gap $\Delta > 0$.

Navier-Stokes existence and smoothness: Prove or give a counter-example to the following statement:

In three space dimensions and time, given an initial velocity field, there exists a vector velocity and a scalar pressure field, which are both smooth and globally defined, that solve the Navier–Stokes equations.

Birch and Swinnerton-Dyer conjecture: the rank of the Mordell-Weil group of an elliptic curve E equals the order of vanishing at the central point of the associated L(s, E).

Landau's problems, all of which remain unsolved today, include: Goldbach's conjecture: Can every even integer greater than 2 be written as the sum of two primes?

Twin prime conjecture: Are there infinitely many primes p such that p+2 is prime?

Legendre's conjecture: Does there always exist at least one prime between consecutive perfect squares?

Are there infinitely many primes p such that p–1 is a perfect square?

Here are some simple-sounding problems that have resisted solution over the years:

- Prove that 10 is a solitary number.
- Prove which numbers can be represented as a sum of three or four (positive or negative) cubic numbers.
- Determine if any odd perfect numbers exist.

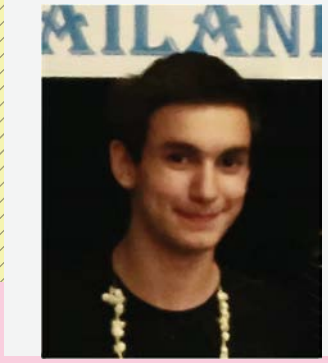
If you want to know more about these classic problems, Google will be a good starting place. And if you crack any of them, please get back to us (after notifying the proper institution in case a prize is offered for its solution, of course!)

ANNOUNCING THE IMO 2015

FRIENDSHIP PRIZE!

IMO 2015 brings together participants from around the world. To encourage everyone to get to know each other, we hereby invite all to nominate your favorite new friend for **THE FIRST-EVER FRIENDSHIP PRIZE.** Each participant can nominate 1 person, the only condition being that your nominee **CANNOT BE YOUR OWN TEAMMATE.** The person who receives the most votes will be our Friendship Prize Winner. We also have prizes for 3 lucky voters (to be decided by a lucky draw). Nominate your favorite new friend by email to IMO2015newsletter@gmail.com by July 13. Be sure to include your nominee's name and country. The list of winners will be published in the July 15 Issue.

HAPPY BIRTHDAY



Given Name:	**Daviti**
Family Name:	**Bezhanishvili**
Country:	**Georgia (GEO)**
Date of Birth:	**10/07/1998**
IMO role:	**Contestant**

MATH IS FUN

Find the point on the y-axis which is equidistant from the points (2, 3) and (-1, 2).

Email your answer to imo2015newsletter@gmail.com. You'll be eligible to win a fabulous prize!

QUOTE FROM GREAT MATHEMATICIANS #2

"In mathematics, the art of proposing a question must be held of higher value than solving it."

"The essence of mathematics lies in its freedom."

Georg Cantor (1845-1918), a German mathematician best known as the inventor of set theory.

If you have an announcement to make, we'll be happy to print it. It can be about a program of study, an important day in your country, or anything else that you think will be of interest to other readers. Email your announcement to IMO2015newsletter@gmail.com. We reserve the right to edit your submission for length and style.

RUNNERS

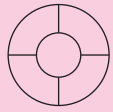
END.

How many colors do you need to color a map?

Let's take a look at one of the most famous theorems in mathematics.
How do you color the maps below under the following conditions?

1. Two shared sections cannot have the same color.
2. The number of colors must be minimized to as few as possible.

For a simple pattern like the one above, three different colors will be enough.



Now, how about this one?

To satisfy both conditions, the above pattern requires 4 colors.
The four-color theorem states:

"Any map can be colored using only four colors in such a way that regions sharing a boundary have different colors."

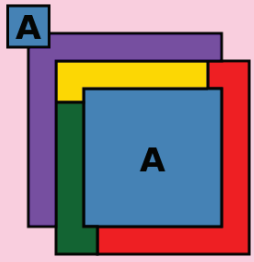
The theorem is simple and beautiful, so mathematicians expected a neat and clear proof. Yet it took over a century of work by humans and computer programs to obtain the (most) acceptable proof. The conjecture was first made in 1852 by Francis Guthrie, then a student at University College London. His brother, who was a student of Augustus De Morgan, asked De Morgan about this claim. Unable to produce a solution, De Morgan wrote to William Rowan Hamilton, the famous Irish mathematician. De Morgan wrote:

A student of mine asked me today to give him a reason for a fact which I did not know was a fact and do not yet. He says that if a figure be anyhow divided and the compartments differently coloured so that figures with any portion of common boundary line are differently coloured - four colours may be wanted, but not more - the following is the case in which four colours are wanted. Query cannot a necessity for five or more be invented ... If you retort with some very simple case which makes me out a stupid animal, I think I must do as the Sphynx did....

Many mathematicians attempted to solve this conjecture. Many false proofs as well as counterexamples were offered. A new branch of mathematics called Graph Theory was created in order to try to prove this. But the conjecture continued to resist solution until 1976, when Appel and Haken finally provided a complete proof with the help of a computer program which ran through a large amount of special and sufficient cases (1,200 hours of computer time were spent). The proof has been widely accepted, but doubts still remain. The most recent version of the proof was given in 2005 with improvement of algorithm.

The four-color theorem was the first well-known theorem to be proved using a computer, This is unusual, as theorems in mathematics have historically been verified by humans using rigorous mathematical procedures. This one, however, was finally cracked with the aid of a machine. The idea of the theorem can be applied to other topologies in mathematics with the number of colors altered.

In the real world, however, the four-color theorem can't always be applied. Some country may have two completely separated regions, one of them lying in the middle of another country, for example. Consider country A:



How many different colors do you need to color this map?

Email your answer to imo2015newsletter@gmail.com. You'll be eligible to win a fabulous prize!

(image taken from http://www.parryloeffler.com/ricecrust/questionRoute.htm)

References:
https://www.mathsisfun.com/activity/coloring.html
http://www-history.mcs.st-and.ac.uk/HistTopics/The_four_colour_theorem.html
http://mathworld.wolfram.com/Four-ColorTheorem.html
https://en.wikipedia.org/wiki/Four_color_theorem

MATHEMATICS IN EVERYDAY LIFE

THE HIDDEN EQUATIONS

Much of the modern world runs on mathematical equations. Many of the things we encounter on a daily basis involve hidden equations, even if most of us don't realize it. To give you an idea how big a role these hidden equations play in our lives, let's take a look at a typical day in the life of a 21st- century high school girl.

6:00 am - Wake up thanks to my digital alarm clock radio. The memory chip inside the clock is a product of the study of electromagnetism, which in turn originated from Maxwell's equations.

$$\nabla \cdot E = 0 \qquad \nabla \times E = -\frac{1}{c}\frac{\partial H}{\partial t} \qquad \nabla \cdot H = 0 \qquad \nabla \times H = \frac{1}{c}\frac{\partial E}{\partial t}$$

We can use these equations to explain the workings of the induction stove my mom uses to prepare my breakfast. Maxwell's equations are also responsible for the invention of radio, radar, television, wireless connections for computer equipment, and most forms of modern communications.

7:00 am – Take a bus to school. The bus owes its aerodynamic design to the Navier-Stokes equation

$$\rho\left(\frac{\partial v}{\partial t} + v \cdot \nabla v\right) = -\nabla p + \nabla \cdot T + f$$

which explains air flows, and the equation in turn arose from an application of equation in turn arose from an application of Newton's second law

$$F = G\frac{m_1 m_2}{d^2}$$

8:00 am – Biology class. We study a model that shows how a population of rabbits changes from one generation to the next when there are limits to available resources. That leads to one of the simplest equations that can generate deterministic chaos. Known as chaos theory, this states that simple nonlinear equations can create very complex dynamics, and that apparent randomness may conceal hidden order. This discovery has many applications in science, including the motions of the planets in our solar system, weather forecasting, population dynamics in ecology, variable stars, earthquake modeling, and efficient trajectories for space probes.

11:00 am – Modern World Studies. Our homework assignment is to find out which country is the world's smallest in terms of land area. Piece of cake! I'm going to Google it after lunch.

12:30 pm – Library time. I head straight to the shelves and start digging… Just kidding! I get on the internet and Google "world's smallest country". The answer pops up in a flash.

How does Google do this, given the vast amount of information out there? The answer is, they use the PageRank algorithm, which combines many fields of mathematics. The results you get for your query comes from solving the equation

$$\pi^T = \pi^T(\alpha S + (1-\alpha)E)$$

The existence of the internet itself is due to the information equation

$$H = -\sum_X p(X)\log p(X)$$

This defines how much information a message contains, in terms of the probabilities with which the symbols that make up the message are likely to occur.

4:30 pm – School is over for the day. I'm going to upload photos of my cute new puppies and share them with the world. The image data in digital photography are related to the Fourier transform

$$\hat{f}(\xi) = \int_{-\infty}^{\infty} f(x)e^{-2\pi i x\xi}dx$$

In essence, the Fourier transform says that any pattern in space and time can be thought of as a superposition of sinusoidal patterns with different frequencies.

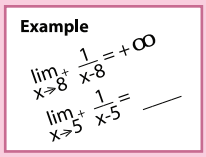
I can't believe we have gone through so many equations. And it's not even dinnertime yet! My uncle is coming over to have dinner with us tonight. He works in finance and sometimes he likes to talk mathematics. His favorite topic is the Black-Scholes equation

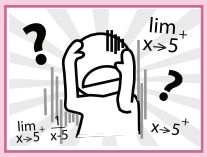
$$\frac{1}{2}\sigma^2 S^2\frac{\partial^2 V}{\partial S^2} + rS\frac{\partial V}{\partial S} + \frac{\partial V}{\partial t} - rV = 0$$

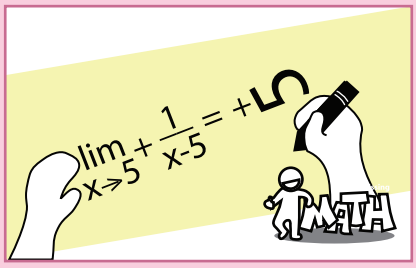
The formula describes how the price of a financial derivative varies over time based on the principle that when the price is correct, the derivative carries no risk and no one can make a profit by selling it at a different price. As you can see, mathematical equations have played a major part in shaping today's world. If you want to learn more, just Google "mathematical equations that changed the world".

AGENDA | DAY 2, FRIDAY JULY 10

LEADERS		DEPUTY LEADERS		CONTESTANTS	
6:00 am	Breakfast	7:00 am	Breakfast	7:00 am	Breakfast
7:30 am	Depart for Q&A session	8:30 am-1.00 pm	Excursion	9:00 am-1.30 pm	Contest (Paper I)
9:00 am	Q&A session	5:30 pm	Dinner		
10:30 am-6:00 pm	Excursion			1:30 pm	Lunch
6:30 pm	Welcome Dinner			5:30 pm	Dinner
8:30-10:00 pm	Scripts of first contest day hand out				







CREATED BY

EDITORIAL: Dr. DHIRANUCH BUNNAG, Dr. TANADON CHAOBANKOH, ASST. PROF. Dr. CHULIN LIKASIRI, Dr. ROBERT MOLLOY, WIRIYA SUNGKHANIYOM, Dr. NATEE TONGSIRI, ASSOC. PROF. Dr. SURASAK WATANESK / **COORDINATION:** SITTIPONG DANTRAKUL, EAKKAPONG DUANGDAI, KANOKON LEUNGSUBTHAWE, SUPALIN SARANWONG, BEN WONGSAIJAI / **MEDIA:** KHOMKRIT HANKLA, NATTAPORN KAEWDOUNGTIEN, PIYAKARN KANCHANABURANGKUN, CHAROEN RUEAKAEO, SAHARAR SRIWAN, PATIPAN SUTEERAPINYO, THUNCHANOK THANANCHAI, CHANAPOND THARAWAN, ALICHA TREEROJANANON, PINYA WONGCHUMNAN / **GRAPHICS:** PARINYA BUAROSSAK, NOPPHORN PUANGSOMBAT, TINPRAPA RUNGSRI / **FRONT COVER PHOTO:** BUNDIT CHAILAIPANICH.

SUPPORTED BY