BOI Newspaper

Sveiki atvykę! Welcome!

Welcome to the 20th Baltic Olympiad in Informatics in Lithuania! It's truly amazing you've made it this far to participate and we're hoping your stay in Palanga will be most enjoyable. Though the core of the Olympiad is the programming contest (best of luck there!), don't hesitate to have a look around. There'll be lots of exciting stuff going on, so don't just sit there! Get involved, make new friends, join the fun! After all, what is a day if it doesn't leave memories?

The new issues of the newspaper will appear daily and will include the latest news and interviews, as well as interesting bits about Lithuania, jokes and brain-teasers. Be sure to grab one if you haven't already!

Time	Contestants	Team Leaders
08:00 - 11:00	Breakfast *For teams arriving on 25th*	
Before 14:00	Arrival, *Hotel Žuvėdra*	
14:00 - 16:00	Lunch	
15:00	Practice	
17:00		Meeting
19:00	Opening Ceremony, *Hotel Gabija*	
20:00	Reception, *Hotel Gabija*	
21:00		Meeting

Sat	**Sun**	**Mon**	**Tue**
19°C 8°C	17°C 7°C	15°C 6°C	15°C 9°C

Meet your guides!

Egidijus Lukošius

Vytautas Jakštys

Simas Kvajauskas
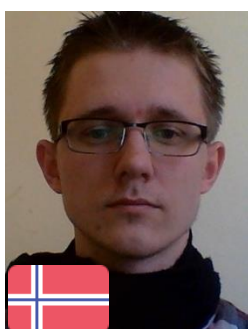
Greta Straigytė

Neringa
Pacevič

Tadas
Kučinskas

Žymantas
Venclauskas

Vytautas
Radzevičius

Rytis
Kymanatas

English	Lithuanian
Hi	Labas
Good morning	Labas rytas
Good evening	Labas vakaras
Bye	Iki
How are you?	Kaip sekasi?
Thanks	Ačiū
Sorry	Atsiprašau
Nice to meet you	Malonu susipažinti
I like it	Man tai patinka

Om Nom Nom 🍽

Cepelinai

Potatoes
Meat mixture
Onions
Salt, pepper
Sour cream
Bacon

Ended up hungry in Lithuania? Don't waste your time thinking! Go to any cafe, canteen or restaurant and ask for 'cepelinai'. Cepelinai (a.k.a. didžkukuliai) is some sort of potato dumplings, stuffed with meat and served with sour cream, onion and bacon sauce. The name *cepelinai* seems to be originating from a *Zeppelin airship*, a flying machine which these yummy potato-balls resemble.

Chat 💬

Back in 2003, he competed in BOI for the first time. After eleven years, he returns to BOI again. Today, we've had a chat with Linas Petrauskas – a BOI organiser and a member of Scientific Committee.

Linas, it's just a few moments before the start of the BOI. Feeling excited?
Yes, it seems that just yesterday we still had three weeks to go, but it is here now. Of course I am excited! For me it's not only the start of BOI, it's also the start of my vacation. :-)

What's special about this BOI?
It's its 20th birthday this year! But to me personally it is special because my country is hosting it.

Why Palanga for BOI? Why Lithuania?
Lithuania was one of the three countries that started BOI. And Palanga is a resort town by the seaside that has interesting spots around for visiting. My favourite is the Curonian Split which contestants will visit on the excursion day.

BOI started with 3 countries. Now it has 9. Any plans to extend further?
I don't think so. More teams means more resources needed to organize the event. And the bigger it is, the harder it gets to find a country willing to host it. When budget permits, BOI can invite guest countries, but a true BOI country is one that also participates in the hosting rotation.

How taking part in Olympiads helped in your life? Why would you advise young people taking part in Olympiads?
The skills certainly came in handy in job interviews. But more importantly, I met nice and smart people here with whom I still keep in touch today. I think it's a great opportunity to meet your future colleagues. I know I didn't think that way when I was competing, but that's true! So my advice to all contestants would be to use the opportunity and make friends here. :-)

Did you see the tasks? How quickly can you solve them?
Yes, I spent some time editing task statements, but to tell you the truth I did not have time to solve them yet. From what I can tell, it is a good mix of tasks with varying difficulty.

Is there anything you would like to say to participants?
At the risk of repeating myself, I hope that you will spend the time not only thinking about the tasks, but also meeting new people and enjoying our seaside. Good luck!

The very first BOI task…

Double Prime Numbers (50 points, time limit – 2 min on IBM PC 486 DX2, 65 MHz)
$\{a_i\}$ is the sequence of prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, …
The elements of the sequence $\{b_i\}$ are built from the elements of the sequence $\{a_i\}$ by gluing together elements in pairs: 23, 57, 1113, 1719, 2329, 3137, …
$\{c_i\}$ is a sub-sequence of $\{b_i\}$ which contains only prime numbers: $c_1 = 23$, $c_2 = 3137$, …
Write a program that finds for the given j ($1 \le j \le 150$) the value of the member c_j.

Input Data	Output	Examples
The input file contains only one integer j.	The output file OUTPUT.TXT must contain only the value c_j.	(files PRIM1.DAT, PRIM2.DAT, PRIM3.DAT) INPUT OUTPUT 1 23 5 167173

You've got problems...

## All horses are the same colour

Consider the following proof by induction, that all horses are of the same colour. What's wrong with it?

Base case: $n = 1$
Trivial. A horse is of the same colour as itself.

Inductive case:
Assume inductively that every n horses are of the same colour. Now, consider a group of $n + 1$ horses. If we take the first n horses, they will be of the same colour because of the inductive assumption. Similarly, the last n horses will be of the same colour as well. Thus, as the first horse is of the same colour as those in the middle, and the last horse is of the same colour as those in the middle, all $n + 1$ horses must be of the same colour. Hence, all horses are of the same colour.
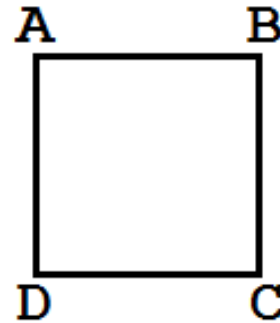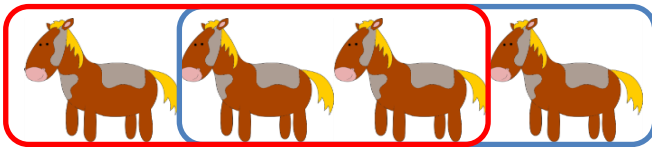
Random walk on a square

Consider the square ABCD shown above. A "walker" starts at A, and walks to B. Then, at each corner, he decides, with 3/4 probability, to continue in the same direction (clockwise or counter-clockwise), and with 1/4 probability, he goes the other way.

The problem then is:
a) What are the probabilities of the various path lengths which return to A?
b) What is the expected path length which returns to A?

Fun time :D

Sometimes I just popup for no particular reason, like now.

Microsoft: "You've got questions. We've got dancing paperclips."

I changed all my passwords to "incorrect".
So whenever I forget, it will tell me "Your password is incorrect."