

## The 25th Mathematical Duel

The 25th Mathematical Duel was held in Graz from March 7<sup>th</sup> till 10<sup>th</sup> 2015. It was the last of three competitions of the Duel Plus project, which is entirely financed by the Erasmus Plus programme.

The competition is divided into two competitions: the individual and team. Each part is separated in three age categories

- Category A
- Category B
- Category C

The teams came from Austrian, Czech and Polish schools:

- Bundesrealgymnasium Kepler in Graz
- Gymnázium Mikuláše Koperníka in Bílovec
- Gymnázium Jakuba Škody in Přerov
- V Liceum Ogólnokształcące in Bielsko-Biała
- Akademicki Zespół Szkół Ogólnokształcących in Chorzów

The schedule of the Duel:

*Tuesday 7 March 2017*

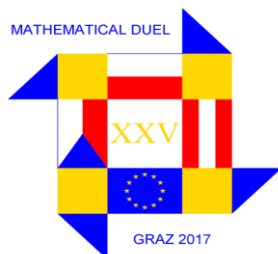
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|--------------|---|
| 17:00        | arrival of the participants to Novapark |
| 18:00        | dinner at the Hotel                     |
| <b>20:00</b> | <b>meeting and greeting</b>             |

*Wednesday 8 March 2017*

- |       |   |
|-------|---|
| 08:00 | breakfast   |
| 09:00 | competition of individual contestants               |
| 11:30 | break   |
| 12:00 | team competition, <b>correction of the examples</b> |
| 13:45 | lunch   |
| 15:30 | departure to Mariahilferplatz in Graz               |
| 16:30 | city tour of Graz                                   |
| 18:00 | greeting in the town hall of Graz                   |

*Thursday 9 March 2017*

- |       |  |
|-------|--|
| 7:30  | breakfast                              |
| 8:30  | departure                              |
| 10:00 | Zotter the chocolate factory in Styria |



12:15	lunch by Wipp'l an Styrian Buschenschank
15:00	Lurgrotte the largest active water cave in Austria
17:00	back in Graz
18:30	dinner at the Hotel

*Freiday 10 March 2017*

7:30	breakfast
8:30	departure
9:00 – 10:00	Lecture at the unifersity, <i>meeting engl. Proj.</i>
10:15 – 12:45	test of students, <i>meeting</i>
13:00 – 14:15	lunch
14:30 – 15:45	Lecture: Hearing Mathematics (Prof. Fellner)
16:00 – 16:30	Lecture: Mathematical Optimization in Biomedical Applications (Prof. Rund)
18:30	presentation ceremony
19:30	dinner
20:30	departure from school to the novapark

*Saturday 11 March 2016*

8:00	breakfast
9:00	departure

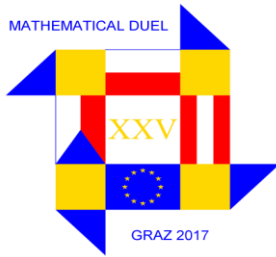
Individual competition started on March 8<sup>th</sup> at 9am.

The students in each age category were given two hours and forty minutes to solve four problems. Since all the problems were formulated in English, the teachers in charge of their teams helped them to understand the content.

The second part of the duel, the team competition, started after a snack break. The participating schools were allowed to send 12 persons - four persons for each age category. Thus, four students representing the same school form one team. However, only three schools were represented by the maximum number of participants. In result, a few teams consisted of less than the agreed number of participants i.e. two or three.

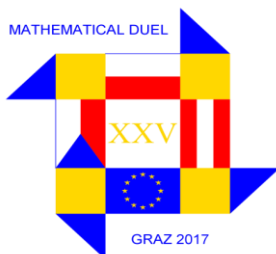
The teams were told to solve three problems within 90 minutes. In the afternoon, all the participants had a guided city tour in Graz, where they passed all the important sightseeing spots. In connection to the tour they were given a greeting from the city in the town hall with typical Austrian food.

On Tuesday, the students and the teachers went to Riegersburg to visit Zotter the chocolate factory in Styria, there you can see all the runs in the factory and test products in various production steps. At the end, they were able to taste the different chocolate variations. For lunch, they stepped by a typical Buschenschank in Styria, where you get only self-produced products. The next stop was the Lurgrotte, the largest active water cave in Austria. A guided tour led some kilometer into the cave, where dripstones were to be seen.



On Friday, the students visited the Faculty of Mathematics at the Karl-Franzens-University of Graz. There they attended lectures of different mathematical applications. Afterwards, they took part in a survey prepared by students of The Faculty of Mathematics. In the late afternoon, the whole group went to Bundesrealgymnasium Kepler in Graz. The school was the venue where the results of the Duel were announced, and the award ceremony with the school chorus "Keplerspatzen" took place. The winners received logical games and books, and the other participants got acknowledgments as consolation prizes. The official part was followed by a cozy ending of the evening.



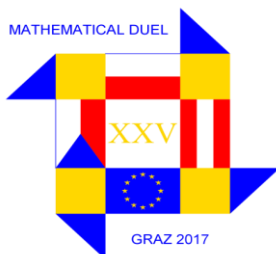


## Results of individual competition Category A

Place	Family name	1 <sup>st</sup> Name	School	Problems				Sum
				1	2	3	4	
1	Fellner	Sebastian	BRG Kepler	8	8	0	8	24
2	Szreter	Adam	AZSO Chorzów	8	6	8	8	22
3	Šuta	Jan	GJŠ Přerov	8	8	0	2	18
4-5	Nábělek	Jiří	GMK Bílovec	8	8	6	3	17
4-5	Pieczka	Karol	AZSO Chorzów	8	8	8	1	17
6-9	Breguła	Piotr	AZSO Chorzów	8	8	0	0	16
6-9	Horčíčka	Vít	GJŠ Přerov	8	8	0	0	16
6-9	Socha	Marcin	AZSO Chorzów	8	8	0	1	16
6-9	Tížková	Bára	GMK Bílovec	8	7	1	0	16
10-11	Pallová	Jana	GJŠ Přerov	8	8	0	6	14
10-11	Wałoszek	Damian	GMK Bílovec	8	8	0	6	14
12	Andritsch	Konstantin	BRG Kepler	8	8	1	1	10
13-14	Chytiová	Denisa	GJŠ Přerov	8	0	1	0	9
13-14	Janovská	Kristýna	GMK Bílovec	8	8	0	1	9
15-18	Baur	Yoram	Graz Allstars	8	8	0	0	8
15-18	Likawetz	Matthias	Graz Allstars	8	8	0	0	8
15-18	Nguyen	Kevin	BRG Kepler	8	8	0	0	8
15-18	Thallinger	Christian	Graz Allstars	8	8	0	0	8
19	Steinmann	Adrian	BRG Kepler	8	3	0	1	4
20	Zotter	Anja	Graz Allstars	0	0	0	0	0

## Category B

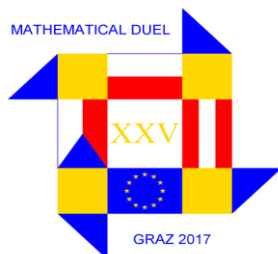
Place	Family name	1 <sup>st</sup> Name	School	Problems				Sum
				1	2	3	4	
1-4	Bílek	Matouš	GJŠ Přerov	8	8	8	0	24
1-4	Narimany	Julian	AZSO Chorzów	8	8	8	0	24
1-4	Rinner	Clara	BRG Kepler	8	8	8	0	24
1-4	Traskowski	Marcin	AZSO Chorzów	8	8	8	0	24
5	Dsubanko	Thiemo	BRG Kepler	8	8	7	0	23
6	Křižák	Tomáš	GMK Bílovec	6	8	8	0	22
7-9	Kleinoscheg	Oskar	BRG Kepler	8	6	6	0	20
7-9	Nguyen	Minh	BRG Kepler	8	4	8	0	20
7-9	Svatošová	Michaela	GMK Bílovec	4	8	8	0	20
10	Placha	Olaf	AZSO Chorzów	4	7	8	0	19
11	Reisner	Teresa	Graz Allstars	0	8	8	0	16
12-13	Michna	Jakub	GMK Bílovec	0	7	8	0	15
12-13	Úlehla	Vít	GJŠ Přerov	0	7	8	0	15



14	Hradil	Jaroslav	GJŠ Přerov	0	4	8	0	12
15-16	Florík	Matyáš	GMK Bílovec	3	4	1	0	8
15-16	Kahr	Alexandra	Graz Allstars+	0	8	0	0	8
17	Grosinger	Sebastian	Graz Allstars	6	0	1	0	7
18	Bauer	Melinda	Graz Allstars+	5	0	0	0	5
19-20	Balic	Klara	Graz Allstars	0	1	3	0	4
19-20	Dostalíková	Amálie	GJŠ Přerov	0	4	0	0	4
21	Trattner	Johannes	Graz Allstars+	0	1	0	0	1
22-23	Novak	Lukas	Graz Allstars	0	0	0	0	0
22-23	Szafarczyk	Tomasz	AZSO Chorzów	0	0	0	0	0

### Category C

Place	Family name	1 <sup>st</sup> Name	School	Problems				Sum
				1	2	3	4	
1	Szymik	Anna	AZSO Chorzów	8	7	8	8	31
2	Socha	Wojciech	AZSO Chorzów	8	8	8	5	29
3	Postava	Štěpán	GMK Bílovec	5	6	8	6	25
4	Arrigoni	Flavio	BRG Kepler	8	1	7	8	24
5	Khýr	Matyáš	GMK Bílovec	8	0	8	7	23
6-7	Dorazilová	Lucie	GJŠ Přerov	6	1	8	6	21
6-7	Poljak	Darian	GJŠ Přerov	8	5	6	2	21
8	Krzywiecka	Anna	AZSO Chorzów	8	0	1	8	17
9-10	Auer	Markus	Graz Allstars	8	0	5	3	16
9-10	Buze	Darius	Graz Allstars	8	0	0	8	16
11	Valentini	Matteo	BRG Kepler	8	1	0	6	15
12	Bravanský	Michal	GMK Bílovec	8	1	0	4	13
13	Andritsch	Sebastian	BRG Kepler	5	0	3	4	12
14	Rosenmann	Inbal	BRG Kepler	3	0	0	8	11
15-16	Čermáková	Marta	GMK Bílovec	8	2	0	0	10
15-16	Tobolík	David	GJŠ Přerov	8	0	0	2	10
17-21	Bedlicka	Aleksandra	AZSO Chorzów	2	0	0	6	8
17-21	Nitsche	Gabriel	Graz Allstars	8	0	0	0	8
17-21	Onderková	Vendula	GJŠ Přerov	8	0	0	0	8
17-21	Rinner	Celina	Graz Allstars+	8	0	0	0	8
17-21	Wissounig	Leon	Graz Allstars	8	0	0	0	8
22	Viertler	Sarah	Graz Allstars+	0	0	0	5	5



## Results of team competition

### Category A

Place	School	Problems			Sum
		1	2	3	
1	Chorzów	8	7	8	23
2	Kepler	8	6	8	22
3	Přerov	8	2	1	11
4	Bílovec	4	3	2	9
5	Allstars	1	0	1	2

### Category B

Place	School	Problems			Sum
		1	2	3	
1	Kepler	8	0	8	16
1	Allstars	8	0	8	16
3	Přerov	4	0	8	12
4	Chorzów	8	0	3	11
5	Bílovec	3	0	6	9
6	Allstars+	1	1	6	8

### Category C

Place	School	Problems			Sum
		1	2	3	
1	Bílovec	8	8	7	23
2	Chorzów	8	6	8	22
3	Přerov	8	3	4	15
4	Allstars	1	8	0	9
5	Kepler	3	0	0	3