

TALKING ABOUT FAST FOOD



Finale assignment for the 23rd Mathematics A-lympiade

Garderen, March 9 and 10, 2012



Colofon

The Mathematics Olympiad (Wiskunde Olympiade) is an initiative of the Freudenthal Institute, Utrecht University

The Olympiad committee is responsible for organising the Olympiad and producing the assignment.

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Photos: Bas Holleman (cover), Tom Goris

GUIDE FINAL MATHEMATICS A-LYMPIAD 2012

IN ADVANCE:

- First read the full text of the assignment so you will know what you have to do this weekend
- Check whether you can open the files on the memory stick.
- Divide tasks where possible.

TIME MANAGEMENT:

- Keep an eye on the time when you work on the different parts.
- A report has to be handed in *and* a presentation has to be prepared. Plan in advance who works when on what.
- Saturday afternoon, before lunch, at 13.00 h, you must hand in the memory stick.

HANDING IN:

Saturday afternoon, at 13.00 h, you hand in the memory stick

Make sure the report is only one file, a pdf is preferred. Try out whether the pdf works on several different computers. The jury will receive digital copies of your report, so you can use colours in it. Each team is responsible for the technical quality of the handed in file.

JUDGING:

Some of the points that are important for the jury:

- The elaboration and report of assignment 1, 2 and 3;
- The materials you make for the final presentation;
- how complete the answers for the various parts are;
- the use of math;
- the argumentation used and justifying choices that have been made;
- the depth to which the various assignments have been answered;
- presentation: shape, coherence, legibility, illustrations, etcetera;
- originality and creativity.

Talking about Fast Food...



Introduction

Amberhavn is a typical middle-sized European town with an authentic town centre. The Amberhavn Conference Resort is located in this old centre, and is not too large with a pleasant atmosphere.

Next autumn a conference day will be organised in the Amberhavn conference centre, where representatives of an international fastfood chain from twenty different countries will exchange knowledge and experiences. During this day there will be workshops around various topics that will be presented by various international experts. The purpose of the day is to exchange as many as possible experiences between the different countries

The programme

The conference starts with a plenary lecture in the central reception hall, then there are three rounds of workshops and finally there is a short closing session.

A total of 19 speakers will take care of one or more workshops, with a number of restrictions (based on size and number of rooms). Also, not all workshops are the same length: there are short (45 minutes) and long (1,5 hour) workshops. You will find an overview of the available speakers and the preconditions for their respective workshops in an Excel file. There are three workshop rounds, each lasting 1,5 hours. The 45 minute workshops can only be planned in the final round.

The around 300 attendees to the conference have registered in advance and indicated their preference for 5 workshops.

The conference is held in the Amberhavn Conference Resort, which has eight rooms available (in addition to the central reception hall annex restaurant). One of these is a computer room with 30 workstations. The other 7 rooms vary in size; again, the details are in the Excel file.

You have been asked to organise the conference day. This means you will have to draw up a programme, roster in the attendees for the workshops and present your results clearly.

Assignment 1

Draw up the programme for the conference with the workshop division for the attendees and the speakers. Keep in mind that contact between attendees from different countries is an important goal for each workshop; so take care to represent as many countries as possible in each workshop. Present the programme and the accompanying workshop division clearly, so that both speakers and attendees will know when they are expected where.

Describe clearly what choices you made and what considerations played a part.

A quality measuring tool

Since you will have had to make choices in drawing up the programme and the division, it is likely that not all wishes of each speaker and each attendee have been fulfilled.

Therefore you want to know how well the programme has been set up and in how far the desires of the attendees are met within the given preconditions. In other words: you are looking for a measuring tool for the quality of the programme and the divisions.

Assignment 2

Develop a procedure to assess the quality of the programme and the division of attendees. Include different aspects, like the expected level of satisfaction from speakers and attendees.

Make sure this procedure can also be applied to other, comparable situations. So give a clear description of the steps you take, your calculations and the interpretation of the results.

Assignment 3

Use the procedure you developed in assignment 2 to determine the quality of your own conference programme and division. Then describe whether and how you could improve the quality of your programme and division, and which different choices you make. Also indicate how you may change your procedure, based on these results.

The results of assignment 1, 2 and 3 will be elaborated in your report.

Presentation on Saturday

On Saturday you will present your procedure to a small group consisting of members of other Olympiad teams and visitors. You will do this by demonstrating your procedure on the programme and the division of a Science Teachers Conference. All required information for this presentation will be provided on Saturday morning.