

# ATCM 2009 Dynamic Geometry Competition

On the pages of the ATCM 2009 abstracts booklet we enclosed 5 different geometry problems to be solved by ATCM participants. Each problem should be solved using your favorite *Dynamic Geometry* program. In each case you are asked to *construct* the pattern shown on the picture and animate it in the most interesting way you can imagine. Last day of the conference we will have a 50 minutes session to present the most interesting solutions – one per problem only, no more than 10 minutes each.

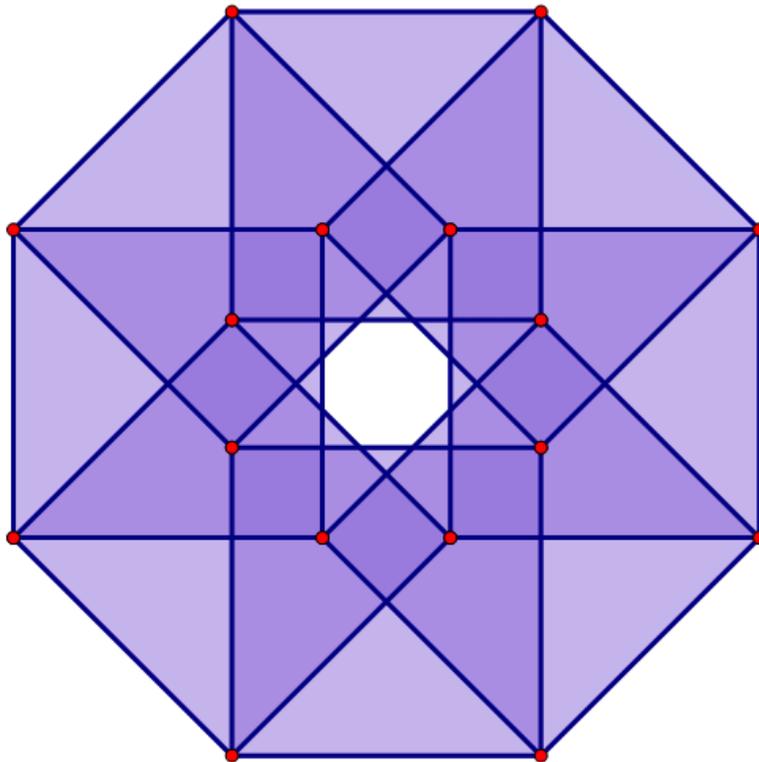
Your works must be *geometric constructions*, not drawings in a graphics program. Objects must be constructed using well known geometric operations. Your constructions must be *interactive* so the user will be able to change the shape or animate it using sliders or handles (points).

## Submitting

Present and deliver your solutions to Prof. Jen-Chung Chuan ([jcchuan@math.nthu.edu.tw](mailto:jcchuan@math.nthu.edu.tw)) any time during the conference. You have to submit the original file from *Cabri*, *GSP*, or any other *Dynamic Geometry* program, and an applet that can be presented during the conference and published on the ATCM web site.

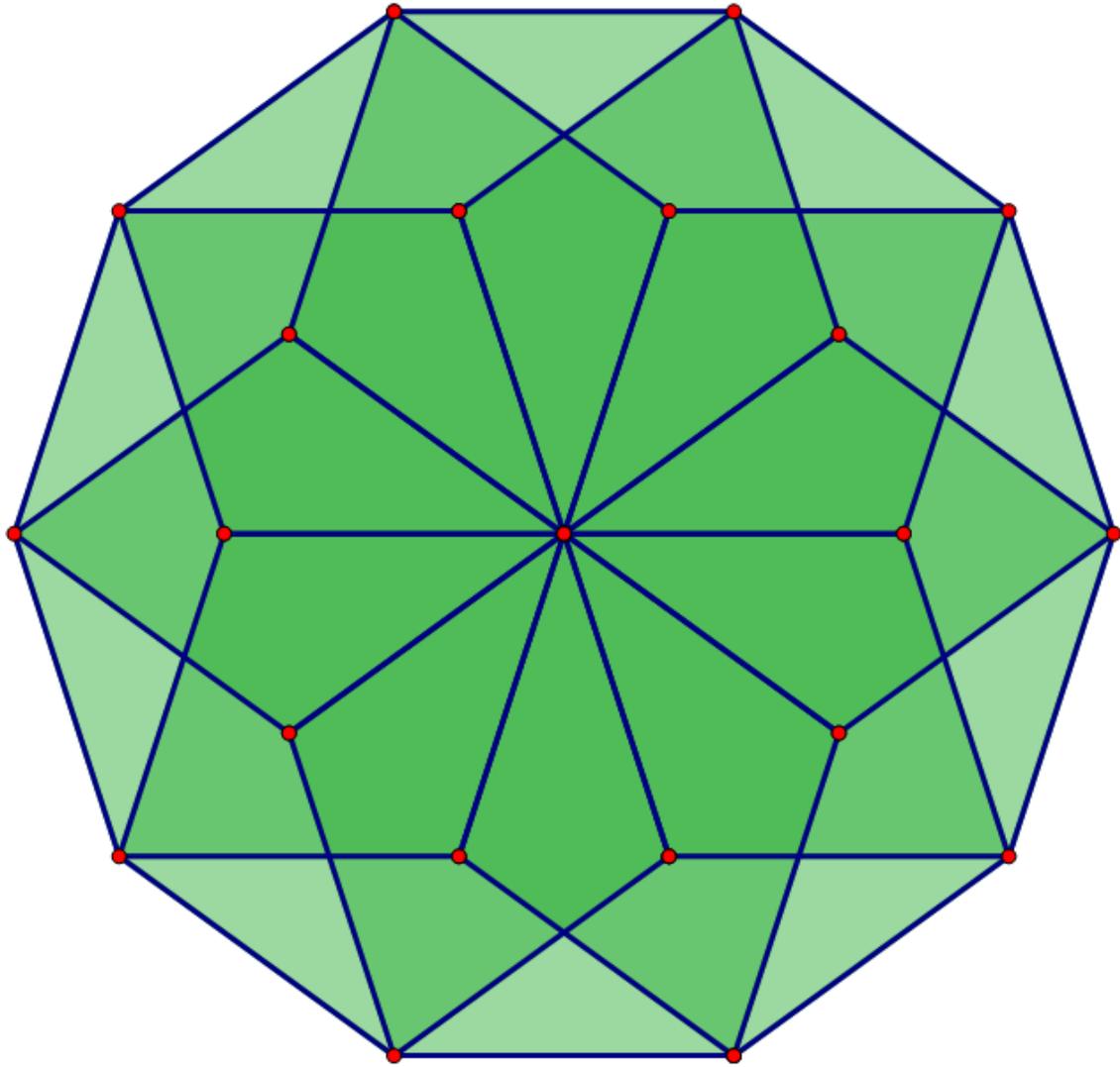
*Mirek Majewski, Jen-Chung Chuan, Hirotaka Ebisui*

## Problem 1



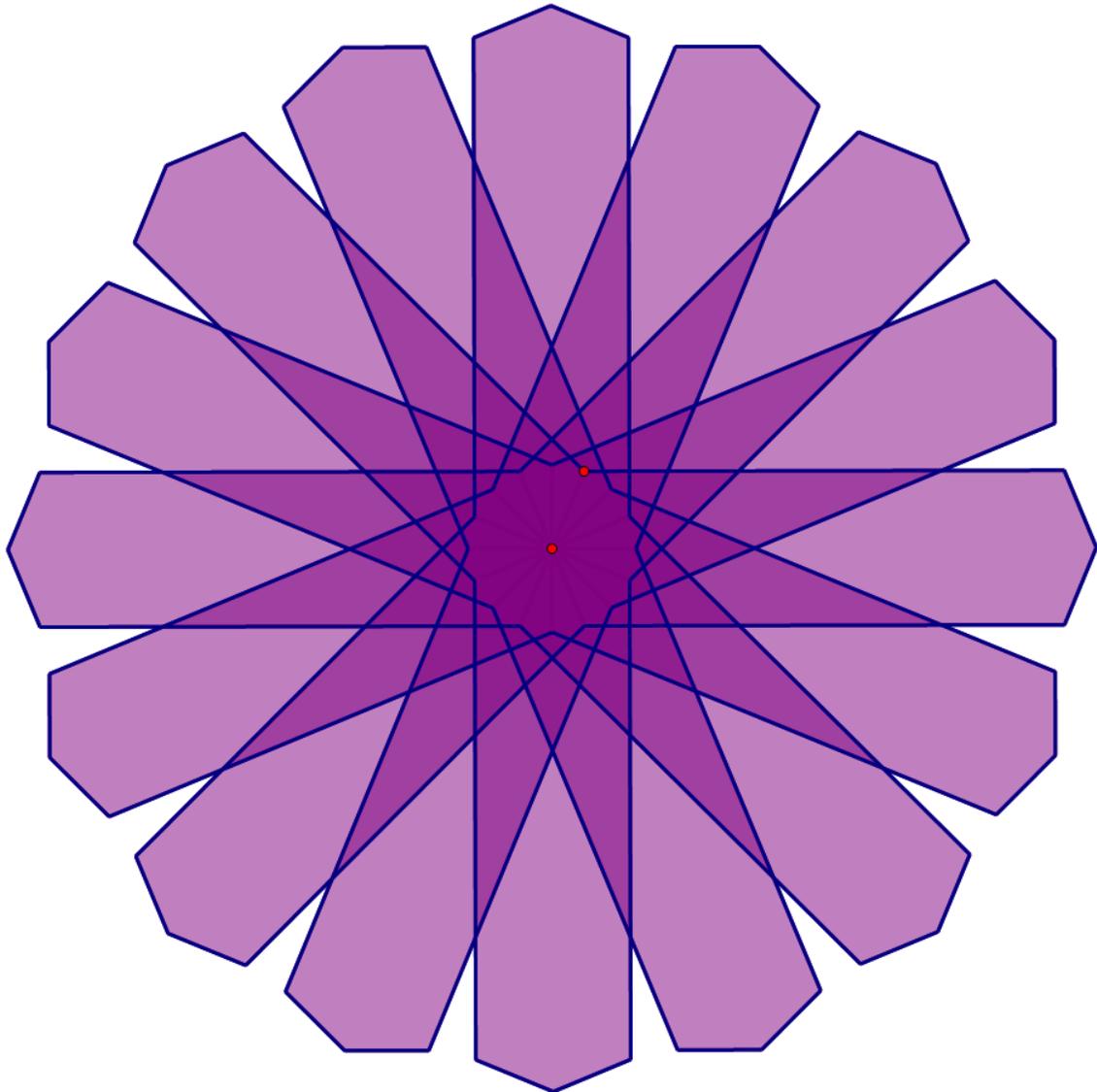
The image was created using a single segment. Reconstruct the image with or without the filling. Develop an interesting animation of this pattern.

## Problem 2



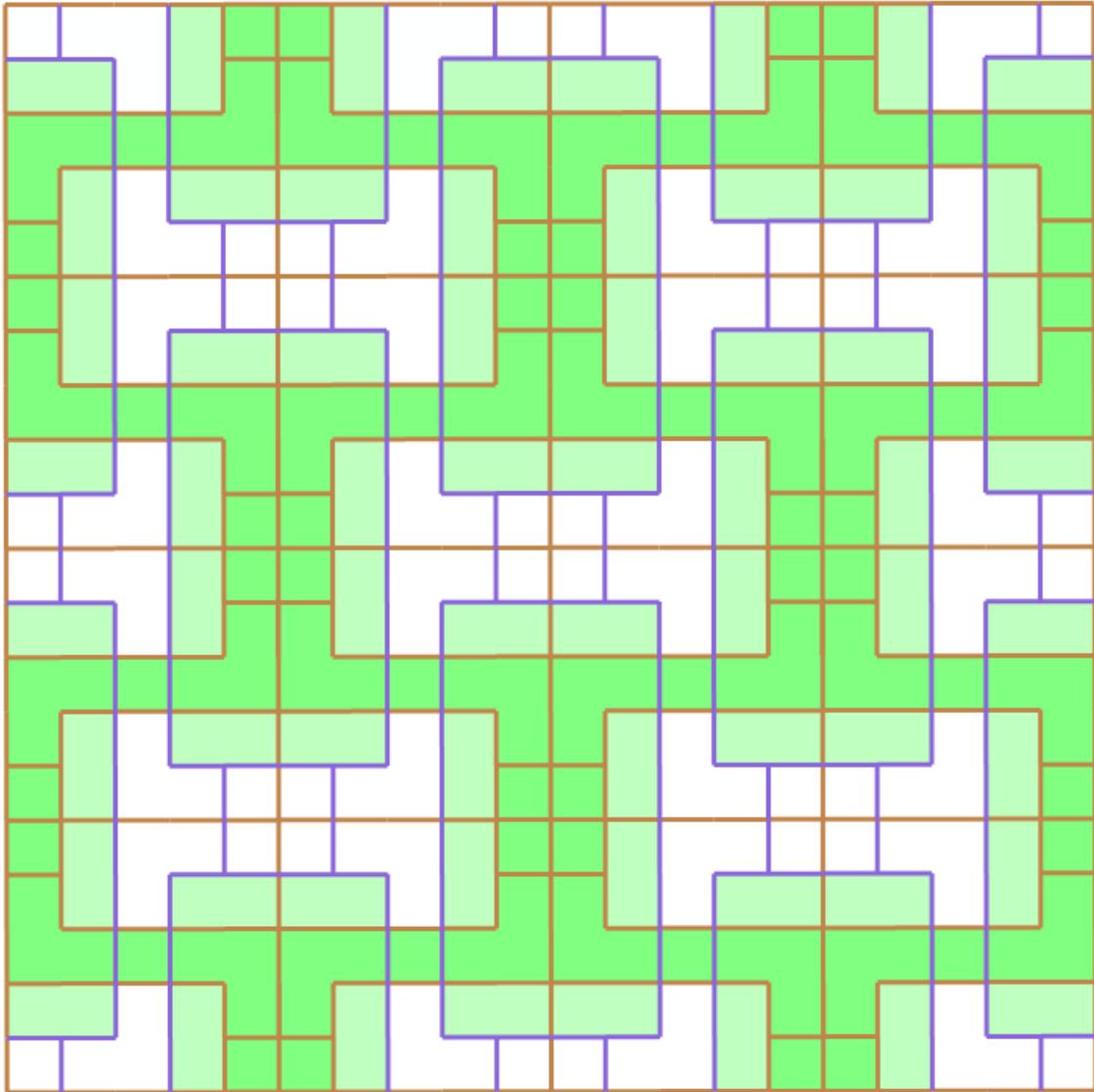
This is another image created using a single segment. You can reconstruct the pattern with filling or not. You can make it even 3D, and of course, animate it.

### Problem 3



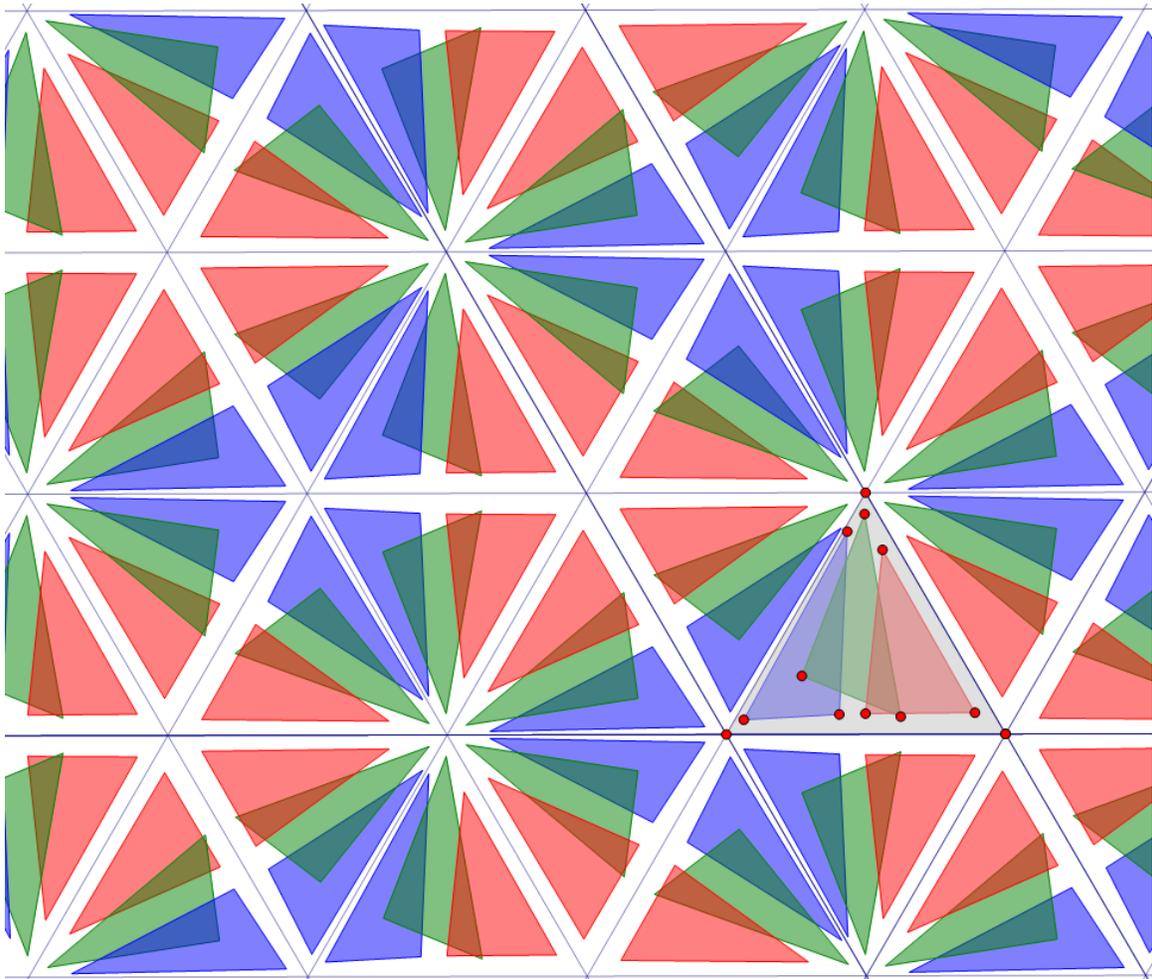
This image was created with multiple segments. The idea is still the same - reconstruct the pattern and animate it. The 3D version of this pattern can be a bit sloppy, but who knows perhaps you will be able to create something interesting.

## Problem 4



The image is a modification of a Chinese pattern known as the Han Line. It is a wall paper pattern that covers the whole plane. You have to develop only the fragment shown above. Do not draw it, construct it!

## Problem 5



Kaleidoscope is a fascinating object and we enjoy it from an early age. The kaleidoscope on the picture uses three mirrors, and three pieces of colored glass. Triangles with red dots represent real pieces of glass and all other triangles are just mirror reflections of them. You can use the red dots to move glass or change its shape. The angle between mirrors is 60 degrees. You can develop a kaleidoscope with a different angle and more pieces of glass.