

## FILL THE GAP!

### GeoGebra Action Package (GAP) for the ADVENTURES ON PAPER exercise book

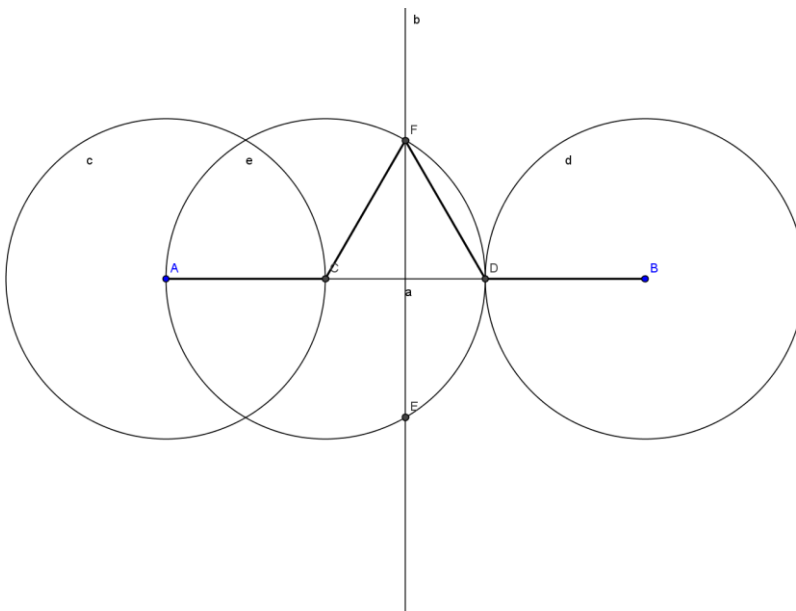
#### *Dirk Huylebrouck: 3D Fractal Workshops*

The exercises are based on the iteration of self-similar properties of fractals. First, create a tool and with this tool the obtained figures can be multiplied to any size.

#### **Exercise 1 (Huylebrouck1.ggb):**

Creating Koch-snowflake in GeoGebra (the tool can be helpful to easily draw Koch curves)

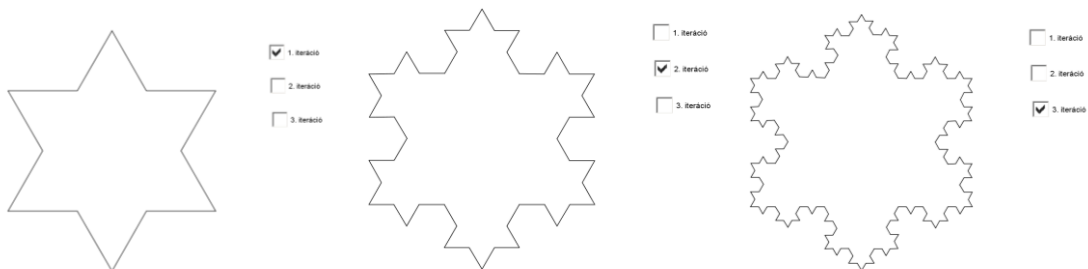
First, prepare a figure as shown below:



Input elements: A, B point

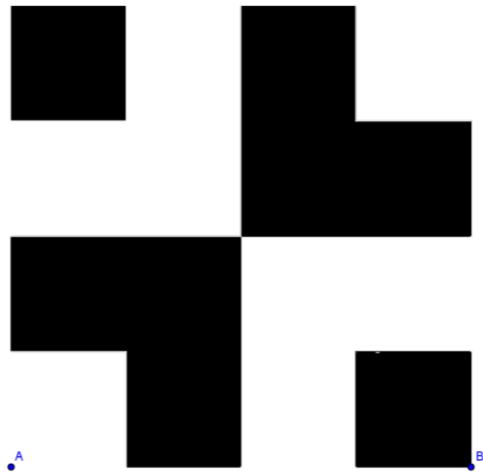
Output shapes: ACFDB broken line

By using checkboxes iterations can be displayed one after the other:



**Exercise 2 (Huylebrouck2.ggb):**

Construct the *Africa fractal* mentioned as Figure 4 in the article. Edit a 4x4 grid for the construction of the tool. Draw 2 white and 2 black L-shaped concave hexagons and 2 black and 2 white square, as it is shown in the figure below. (Important: it is insufficient to leave white areas blank, these have to be constructed on the same way as the black areas!)



Input data: A, B point

Output data: 4 hexagons and 4 squares

Iterations can be continued as long as we would like to.

By using checkboxes iterations can be displayed one after the other:

