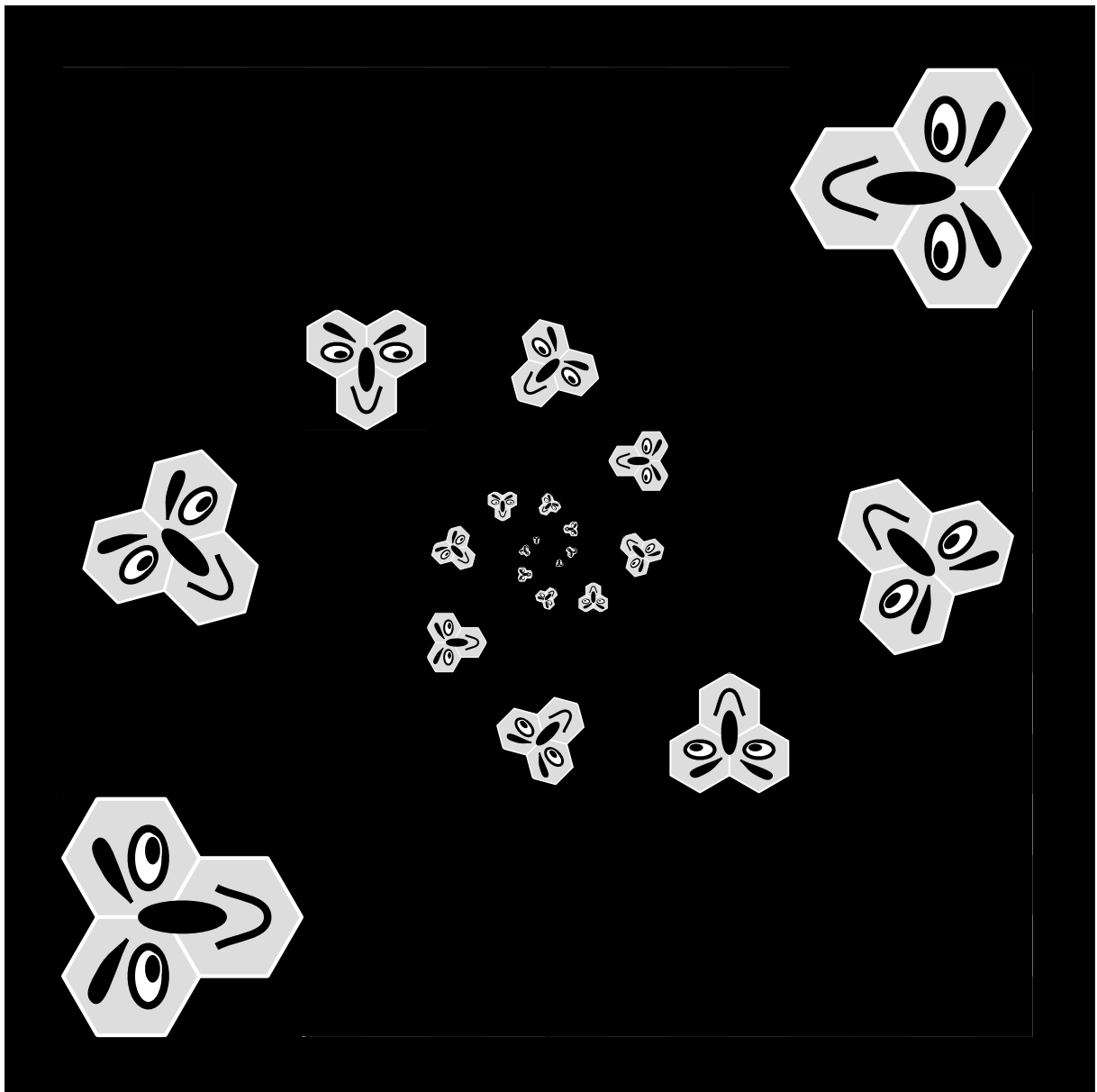


GCSE Mathematics

TRANSFORMATION GEOMETRY



Transformation Geometry

GCSE Mathematics
Transformation Geometry

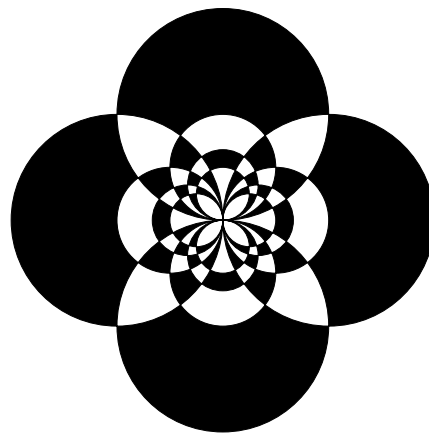
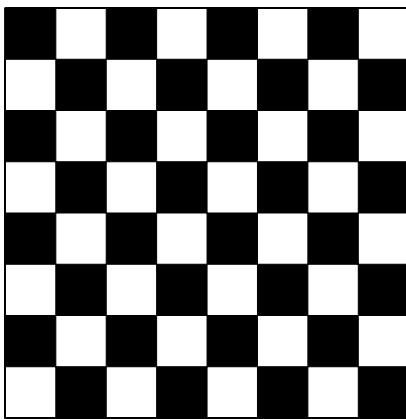
Lesson 1

1.1 Introduction

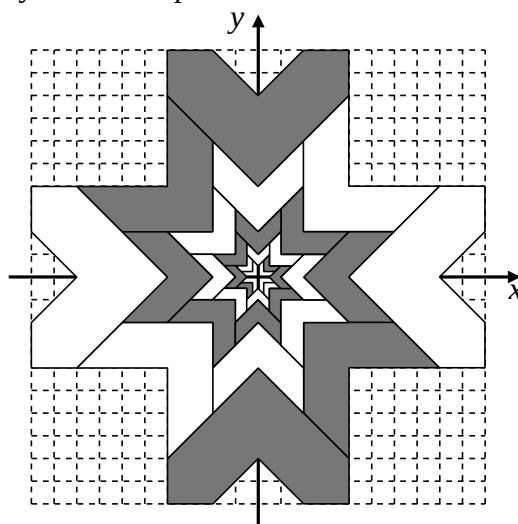
In this presentation of **Transformation Geometry**, four TRANSFORMATIONS will be studied. In turn, each of the following will be considered:

- T1 Translation
- T2 Reflection
- T3 Rotation
- T4 Enlargement

Be aware that other beautiful and interesting transformations exist. Given an unfamiliar transformation to investigate, a feel for what it does can be gained by applying the transformation to test shapes. For example, the transformation known as an **inversion** distorts a chessboard as shown:

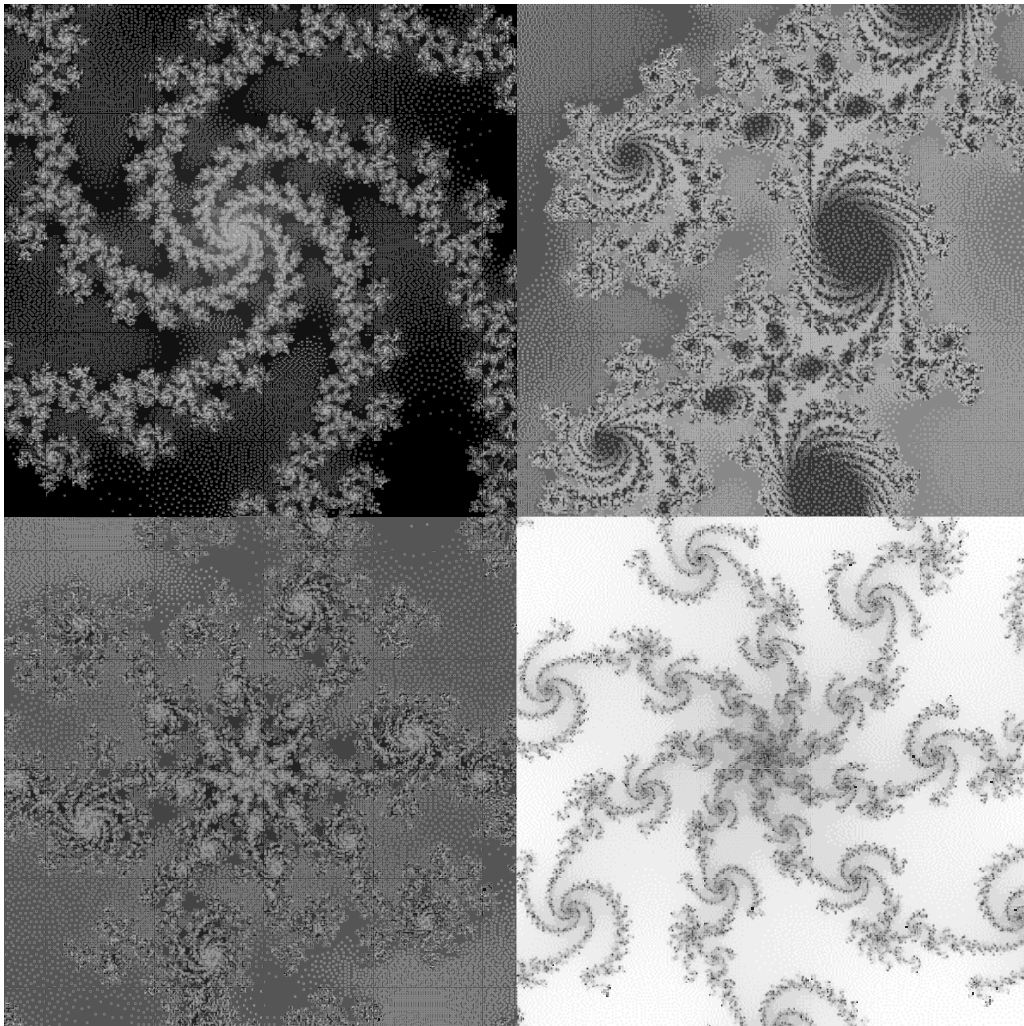


As a second example, here is the result of applying a transformation called a **spiral similarity** repeatedly to a V-shape.



The construction has been left unfinished to show the “work in progress”.

With the development over the last thirty years of the computer, the true beauty of transformation geometry can be appreciated by all. Computers allow us to see in intricate detail an exciting and previously hidden mathematical world.



An internet search on the topic of "Transformations" will quickly find many fascinating images. The pictures above are pieces of the "Mandelbrot Set".

Notice that there are many spiral similarities in these picture.

1.2 Exercise

Search the internet to find some pictures of "transformations".

Search words : Fractals, Inversion, Spiral Similarities, Mandelbrot Set, Julia Set.