

The background of the entire image is a dense, repeating geometric pattern. It consists of interlocking shapes in three colors: red, blue, and gold. The red shapes are triangles with internal patterns, the blue shapes are hexagons with internal patterns, and the gold shapes are star-like or floral motifs. These shapes are arranged in a grid-like fashion, creating a complex, tessellated effect. The overall appearance is reminiscent of a traditional Islamic or Arabesque geometric design.

Math 3500

Algebra I: Group Theory

Book 1

Symmetry group of a square  :

$$G = \{I, R, R^2, R^3, H, V, D, D'\}$$

R = counter-clockwise rotation about center by 90°

R^2 = 180° rotation about center

R^3 = 270° counterclockwise rotation = 90° clockwise rotation

$$R^4 = I$$

D = reflection



$$H = \text{---} \square \text{---} \updownarrow H$$

$$V = \square \text{---} \leftarrow \rightarrow V$$

D' =



