

## TUTORIAL 2 – ALGEBRA 2019

- (1) Look at the fields of order less than ten that were considered in Tutorial 1. It is o.k. to use the solutions for that tutorial. Can you find field homomorphisms between these fields? How about some automorphisms?
- (2) Choose your favourite polyhedron, and consider its group of rotational symmetries (it is fine to look up what that is). Play around with the subgroups: can you find the Sylow subgroups, do you understand stabilizers and conjugation? Do you see manifestations of the orbit-stabilizer theorem? Are there interesting normal subgroups or quotients?
- (3) Describe the action of the automorphism groups from Question 1.