

Math 241, Introduction to Abstract Algebra – Fall 2019
Course website: <https://sites.aub.edu.lb/kmakdisi/>
Problem set 7, due Wednesday, October 23 at the beginning of class

Exercises from Fraleigh:

Section 13, exercises 22, 47, 50, 53.

Section 14, exercises 2, 6, 9, 10, 12, 21, 30, 31, 33.

Exercise A7.1: Let $G = S_4$ and let $H = \{1, (12)(34), (13)(24), (14)(23)\}$.

a) Show that H is a subgroup of S_4 and that in fact it is a normal subgroup. (The fact that H is a subgroup was in quiz 1, but please check the multiplication table carefully this time. Note that H is isomorphic to the Klein 4-group, but this does not play a role in the current exercise.)

b) Find the structure of the quotient group G/H . (It is isomorphic to a familiar group; which one and why?)

Look at, but do not hand in:

Section 13, exercises 49, 51, 52, 55.

Section 14, exercises 22, 26, 27, 32, 34, 35, 36, 38, 39.