Math 421 - Quiz 11
November 17, 2022

Name: solutions

1. [*1 point*] How many elements are in A_4? No explanation needed.

12

2. [*1 point*] Give an explicit example of a (non-trivial) element of A_4.

$(12)(34)$

3. [*1 point*] Give an explicit example of an element of S_4 that is not in A_4.

(12)

4. [*2 points*] Set $H \leq A_4$ to be the unique subgroup of order 4. To which familiar group is $(S_4/H)/(A_4/H)$ isomorphic? Briefly explain.

$(S_4/H)/(A_4/H) \cong S_4/A_4$ by the 3rd Isomorphism Theorem.

$|S_4/A_4| = 2$, so it's isomorphic to $\mathbb{Z}/2\mathbb{Z}$, (or $\mathbb{Z}_2$.)