

Modern Algebra I, Spring 2017

Homework 5, due Wednesday February 22 before class.

Read Judson Section 5.1 up to but not including Transpositions.
Solve the following problems.

- Section 5.3 (page 67) exercise 1abd.
- Simplify the following permutations and write them as products of disjoint cycles:
(a) $(12)(1234)$, (b) $(13)(24)(12)$, (c) $(132)(13)(123)$,
(d) $(142)(35)(23)(152)$, (e) $(1423)(34)(56)(1324)$,
(f) $(1542)(365)(2314)$.
- Same question as in exercise 2 for the following permutations
(a) $(123)^2$, (b) $(13)^7$, (c) $(16352)^3$, (d) $(1342)^{10}$,
(e) $(15324)^{-1}$, (f) $(132)^4(142)^{-1}$, (g) $((154)(32))^{13}$.
- What are the orders of the following permutations
(a) (1) , (b) (1523) , (c) $(153)(24)$, (d) $(165)(243)$,
(e) $(1743)(25)(68)$?