

MATH 456-01
Solutions to 7.5 Homework

Section 7.5
p. 233: 1, 2, 3, 7

1. Just chase through the permutation: in (a), for example, $1 \mapsto 7$, and $7 \mapsto 3$, and $3 \mapsto 1$, closing the cycle. All other elements are fixed.
 - (a) (173)
 - (b) (1245789)
 - (c) (1476283)
 - (d) (35798).

2.
 - (a) $(12)(23)(34) = (12)(234) = (1234)$
 - (b) $(246)(147)(135) = (246)(13547) = (1356247)$.
 - (c) $(12)(53214)(23) = (12)(1453) = (14532)$.
 - (d) $(1234)(2345) = (12453)$.

3.
 - (a) $(12)(45)(679)$
 - (b) $(13)(254)(789)$
 - (c) $(13)(254)(69)(78)$
 - (d) $(14)(27)(523)(34)(1472) = (1573)(24)$
 - (e) $(7236)(85)(571)(1537)(486) = (123)(456)(78)$

7.
 - (a) $(2468) = (28)(26)(24)$ is odd.
 - (b) $(246)(134) = (26)(24)(14)(13)$ is even.
 - (c) $(12)(123)(1234) = (12)(13)(12)(14)(13)(12)$ is even.