1.1. a. $(14)(273) \in S_7$

b. $(13)(25) \in S_5$

c.

1	2	3	4	5	6	7	8	9	10	11	12
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
2	11	8	10	4	3	2	6	1	5	9	12

1.2.1. $k^{-1} = (975)(231)$

$\therefore kk^{-1} = (579)(132)(975)(231)$

$= (1)(2)(3)(4)(5)(6)(7)(8)(9)$

$= e$

2. $ghk = (14278)(145)(579)(132)$

$= (13794578)(2)(6)$

$= (13794578)$

3. $k^{-1}ghk = (975)(231)(13794578)$

$= (3582)(49)$

1.3.1. 5
2. 3 } LCM of individual cycle orders
3. 6

4. $(12345)(678)$

5. 19 is prime so no decomp in S_{10} $\therefore$ no. ☐

6. Yeah, LCM stuff !!

1.4. $(132)\sigma = (12)(34)$

$\therefore \sigma \in S_4$

$\sigma = (132)^{-1}(12)(34)$

$= (231)(12)(34)$

$= (134)$

1.5. $(132)(574)\sigma = (12)(34)$

$\therefore \sigma \in S_7$

$\sigma = (132)^{-1}(574)^{-1}(12)(34)$

$= (231)(475)(12)(34)$

$= (13754)(2)(6)(7)$

$= (13754)$

1.6. $\sigma = (98765432)(98765432)$

$= (18642975 3)$