

TW 314 (Applied Discrete Mathematics)

Tutorial 2 : 13 February 2017

1. Which of the following are groups of permutations of the set $\{1, 2, 3, 4, 5\}$, that is, which of them are subgroups of S_5 ?

(a) $\{(12345), (124)(35)\}$

(b) $\{\text{id}, (12345), (13524), (14253), (15432)\}$

(c) $\{\text{id}, (12)(34), (13)(24), (14)(23)\}$

(d) $\{\text{id}, (12)(345), (135)(24), (15324), (12)(45), (134)(25), (143)(25)\}$

2. Find the orders of the following permutations, considered as elements of the symmetric group S_8 .

(a) $(1235)(48)(67)$

(b) $(12)(35)(48)(67)$

(c) $(13672)(458)$

3. List the symmetries of a regular pentagon, regarded as permutations of the corners $1, 2, 3, 4, 5$ labelled in cyclic order.

