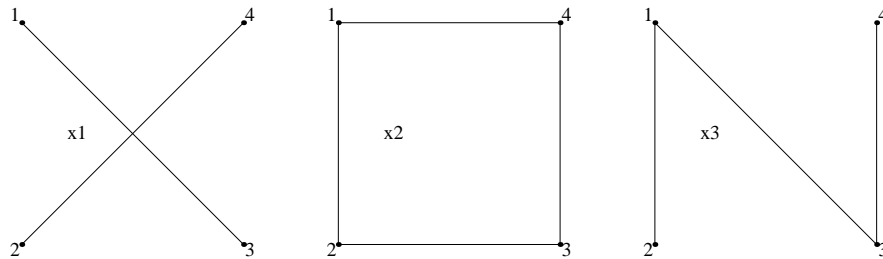


## Exercises discussed on May 24, 2011

(HW38) Show that the set stabilizer  $G_Y$  is a subgroup of  $G$ , i.e.,  $G_Y \leq G$ .

(HW39) Determine (a)  $(S_4)_{x_1}$ , (b)  $(S_4)_{x_2}$  and (c)  $(S_4)_{x_3}$  where



(HW40) Consider the group action

$$S_4 \times \binom{[4]}{2} \rightarrow \binom{[4]}{2}$$

$$(\pi, \{i, j\}) \mapsto \pi\{i, j\} = \{\pi(i), \pi(j)\}$$

Determine:

- (a)  $(S_4)_{\{2,4\}}$
- (b)  $(S_4)_{\{\{2,3\}, \{3,4\}\}}$
- (c) Let  $\pi = (1)(2, 3, 4, 2) \in S_4$ , then  $\bar{\pi} = ?$
- (d)  $\overline{S_4} = ?$