

## Worksheet 11: Orbit-stabilizer

Recall, that  $S_n$  acts on  $\mathcal{P}(\{1, 2, \dots, n\})$  by

$$w(\{i_1, \dots, i_k\}) = \{w(i_1), \dots, w(i_k)\}.$$

1. What is the stabilizer  $\text{Stab}_{S_9}(\{1, 3, 5\})$  (up to isomorphism)?
2. For  $A \subseteq \{1, 2, \dots, n\}$ , what is  $\text{Stab}_{S_n}(A)$  (up to isomorphism)?
3. Using the fundamental counting principle, give the size of the orbit of  $A$  as a fraction.
4. What is the stabilizer of  $D_6$  acting on

