

Reading Questions

page 110: Definition 5.1

1. Let G be a group such that $x \in G$ and $H \subseteq G$. If Hx is a right coset then H must be a subgroup of G .
2. Let G be a group such that $x \in G$ and $H \leq G$. Then Hx is a subgroup of G .
3. Let $G = \mathbb{Z}_5$ and $H = \langle 2 \rangle$ and $x = 3$. List the elements of Hx .

Section 5.1 Translation Action and Cosets (Part 1)

Cosets

P 1. Let $G = S_4$ and $H = \langle (123) \rangle$. List the right cosets of H in G .

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P 2. Let $G = S_4$ and $H = \langle (123) \rangle$. What is $|H : G|$?

P 3. Let $G = D_8$ and $H = \langle R_{90} \rangle$. List the left cosets of H in G .