2.1. $(g^{-1}hg)(g^{-1}hg)(\cdots)(g^{-1}hg)$

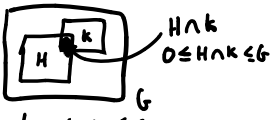
$= g^{-1}h^n g$ h^n

2.2.1. only if satisfying axioms

2. isomorphic, each elm can map
each with always same behaviour → same.

3. No, $|\mathbb{R}| \neq |\mathbb{Q}|$ even tho $||\mathbb{R}| = |\mathbb{Q}||$

2.3. $H \leq G$, $K \leq G$



$H \cap K$
$0 \leq H \cap K \leq G$

↳ $H \cap K \leq G$

2.4. $|\langle g \rangle| = |\{g, g^2, g^3, \cdots, g^n\}|$

$\because n: g^n = g$ (loops back)

realised when loops → e

↳ $o(g)$

$\therefore$ num elements $= o(g)$

↳ $|\langle g \rangle| = o(g)$ ∎

2.5. $g = (1\ 3\ 5\ 7)(2\ 4) \in S_{10}$

↳ $|\langle g \rangle| = \{g, g^2, g^3, g^4, g^5, g^6, g^7\}$

2.