Modern Algebra I: Group Theory

Examples of Groups

Set	Operation	Order	Description	Identity	Inverse	Abelian?	Cyclic?	Other Notes (isomorphic groups, etc.)
D_3								Isomorphic to the set of functions generated by $f(x) = \frac{1}{x}, g(x) = \frac{1}{1-x}$ under composition
D_4								
V_4								
S_3			Permutations of a three element set ({a, b, c}, for example)					Isomorphic to D_3
$\mathbb{Z}$								
{1, -1}								

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Set	Operation	Order	Description	Identity	Inverse	Abelian?	Cyclic?	Other Notes (isomorphic groups, etc.)
$\{1, -1, i, -i\}$								
$\mathbb{R}^\times$								
$\mathbb{Z}_n$		Number of $\{1,\ldots,n\text{-}1\}$ relatively prime to n						
$\mathbb{Z}_n^\times$							In some cases, but not in general	
$M_2(\mathbb{R})$								
$GL(2,\mathbb{R})$								

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Examples of Groups

Set	Operation	Order	Description	Identity	Inverse	Abelian?	Cyclic?	Other Notes (isomorphic groups, etc.)
$SL(2,\mathbb{R})$								
$GL(2,\mathbb{Z}_2)$								