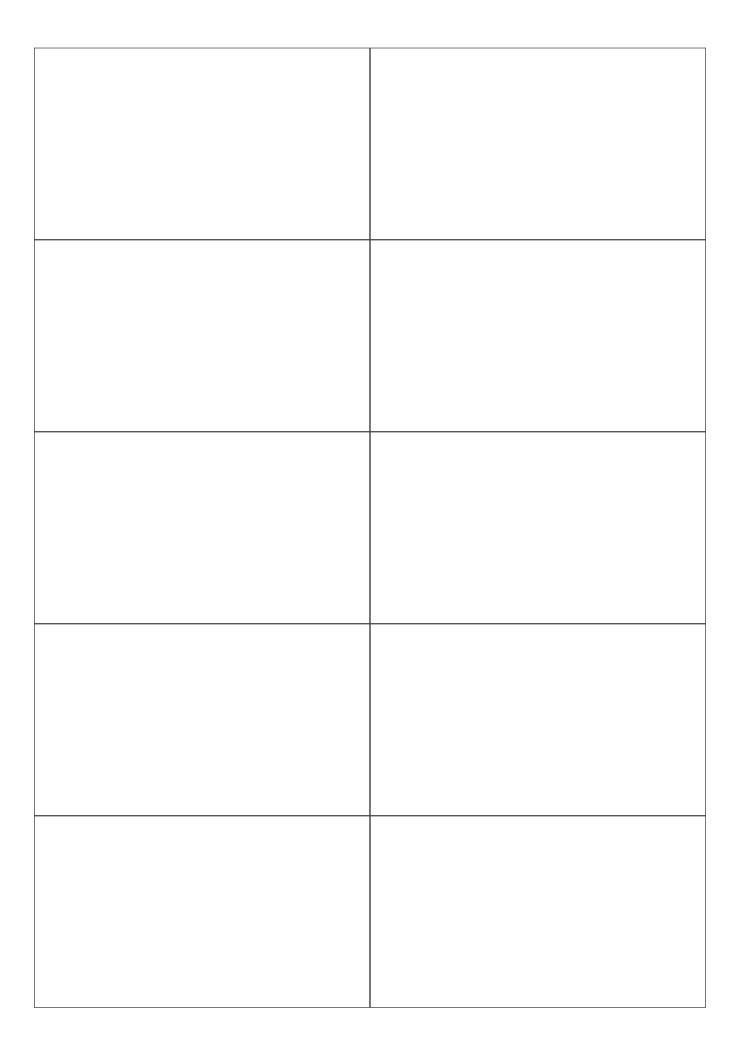
Copying	DEFINITION
Flash Cards for the Book: "Representations and Characters of Groups" by Gordon James and Martin Liebeck	group
Representation Theory	Representation Theory
DEFINITION	DEFINITION
subgroup	dihedral group D_{2n}
Representation Theory	Representation Theory
Definition	DEFINITION
cyclic group C_n	quaternion group Q_8
Representation Theory	Representation Theory
Definition	DEFINITION
alternating group A_n	direct product
Representation Theory	Representation Theory
Representation Theory	Representation Theory

A group consists of a set G , together with a rule for combining any two elements $g, h \in G$ to form another element of G satisfying: 1. $\forall g, h, k \in G, (gh)k = g(hk)$ 2. $\exists e \in G$ such that $\forall g \in G, eg = ge = g$ 3. $\forall g \in G, \exists g^{-1} \in G$ such that $gg^{-1} = g^{-1}g = e$	© 2017 Jason Underdown These flash cards and the accompanying LATEX source code are licensed under a Creative Commons Attribution—NonCommercial—ShareAlike 4.0 International License © ••••
$D_{2n} = \langle a, b : a^n = 1, b^2 = 1, b^{-1}ab = a^{-1} \rangle$	Let G be a group. A subset H of G is a subgroup if H is itself a group under the operation inherited from G . $H\leqslant G$
$Q_8 = \langle a, b : a^4 = 1, a^2 = b^2, b^{-1}ab = a^{-1} \rangle$	$C_n = \{1, a, a^2, \dots, a^{n-1}\}$ $C_n = \langle a : a^n = 1 \rangle$
Let G and H be groups, consider $G\times H=\left\{(g,h):g\in G\text{ and }h\in H\right\}.$ Define a product operation on $G\times H$ by $(g,h)(g',h')=(gg',hh').$ The group $G\times H$ is called the direct product of G and G .	$A_n = \{g \in S_n : g \text{ is an even permutation}\}$ Recall that every permutation $g \in S_n$ can be expressed as a product of transpositions. An even permutation has an even number of transpositions, and an odd permutation has an odd number of transpositions.

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