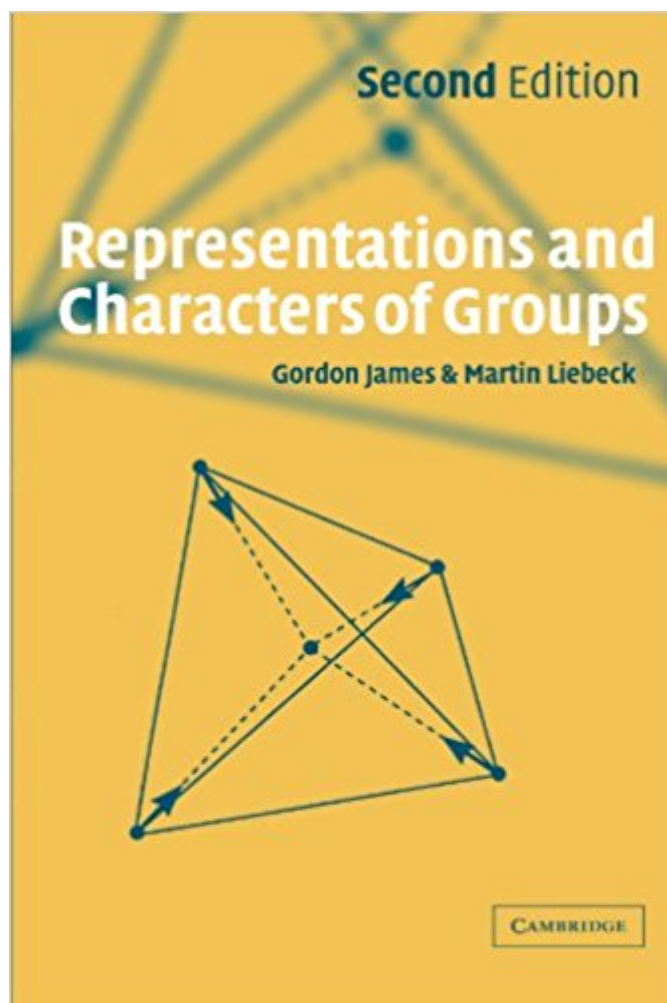


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# Representations And Characters Of Groups, Second Edition



## Synopsis

This is the second edition of the popular textbook on representation theory of finite groups. The authors have revised the text greatly and included new chapters on Characters of  $GL(2,q)$  and Permutations and Characters. The theory is developed in terms of modules, since this is appropriate for more advanced work, but considerable emphasis is placed upon constructing characters. The character tables of many groups are given, including all groups of order less than 32, and all but one of the simple groups of order less than 1000. Each chapter is accompanied by a variety of exercises, and full solutions to all the exercises are provided at the end of the book.

## Book Information

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## Customer Reviews

"...an elegant treatment of ordinary representation theory, at a level suited to undergraduates."

Times Education Supplement

This is the second edition of the popular textbook on representation theory of finite groups. The authors have greatly revised the text and added new sections. Each chapter is accompanied by a variety of exercises, and full solutions to all the exercises are provided at the end of the book. This will be suitable as a text for those teaching a course in representation theory, and in view of the applications of the subject, will be of interest to chemists and physicists as well as mathematicians.

The authors have ironed out some inconsistencies in the standard mathematical presentations. This

makes things both easier and harder to understand - easier because it is internally more consistent, and harder because it's harder to relate to other texts. But the way material is presented is very good. I have the Kindle version and I'm also ordering the paperback.

This is a nice book for undergraduates. You should know some group theory first and it would be helpful to know what modules are and what they are used for. If you don't understand modules, read a few pages in Dummitt & Foote, or something like that. Wikipedia is even good for that. For anybody (such as theoretical physicists) wanting to understand representation theory in the way mathematicians view it, it's the right type of book to read first before stuff like Fulton.

This is a great book. Well written and the copy I bought was in great condition

Could have been a good and slow introduction to the topic. Unfortunately the authors decided to create their own little world by using nonstandard notations, e.g. a function  $f$  applied to an object  $x$  becomes  $x.f$  instead of  $f(x)$  and flipping more or less every standard notation we know in mathematics. This happens every now and then in the literature but these guys are taking it to an absurd level. This seemingly harmless choice has major implications: 1 - if you already know any math at all, the authors are asking you to re-learn everything to adapt to their choice 2 - if you learn from this book you won't be able to read any standard text on the topic without major aggravation or confusion. Waste of time and money from my standpoint. The text is not good or original enough to warrant the aggravation the authors are asking from a reader. Self-infatuation at its worst.

Representations and characters of finite groups are a classical subject, with substantial developments well underway a century ago. As a result there has been gradual refinement and polishing of the field. The beauty of this subject is shown well in this book. The style is clear and order of exposition excellent. Moreover, the authors write with great patience, both in respect to presenting calculations in detail and in providing the steps to proofs. This is not to say the book is easy, but rather that the distance from step to step is very well suited for advanced undergraduates and beginning graduate students. The book is highly mathematical in its outlook, except for the final chapter, which deals with normal modes of vibration of a molecule. There are some real gems. In a certain finite group, is it possible to find an element of order two and one of order four whose product has order three? The answer may be found in the chapter, "An Application to Group Theory." The presentation of the Frobenius Reciprocity Theorem is an exceptional delight. As for

prerequisites, a good grounding in general group theory at an undergraduate level and a reasonably good acquaintance with rings and modules should suffice.

Not having a formal background in pure mathematics, I approached the subject of the representation theory of finite groups with some trepidation. Having looked at various books in the field, I found that the book by James and Liebeck was the clearest and most readable exposition of the subject. There is little fuss or abstract formalism that might obscure the meaning of the fundamental concepts and theorems. The material is clearly written and very well organized. The chapters are very short, thankfully, and the best thing is that there are complete worked solutions to all the chapter exercises. The book ends with a nice application of the theory to molecular vibration. (As always, it helps to know the basic facts about groups, and linear algebra - vector spaces, linear transformations, matrices etc.) An excellent book!

an excellent introductory text on GRT. answers in the back to all exercises make it ideal for self-study.

James and Liebeck have done a wonderful job presenting the material in a concise, straightforward, easily handled fashion. The book is well organized, the exercises vary from basic to difficult, and the solutions are provided in the back of the book so that you don't have to bang your head on the wall for too long because of the tough problems!

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