



Linear and Geometric Algebra

By Alan Macdonald

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This textbook for the first undergraduate linear algebra course presents a unified treatment of linear algebra and geometric algebra, while covering most of the usual linear algebra topics. Geometric algebra is an extension of linear algebra. It enhances the treatment of many linear algebra topics. And geometric algebra does much more. Geometric algebra and its extension to geometric calculus unify, simplify, and generalize vast areas of mathematics that involve geometric ideas. They provide a unified mathematical language for many areas of physics, computer science, and other fields. The book can be used for self study by those comfortable with the theorem/proof style of a mathematics text.

This is a fourth corrected printing. Chapter 6 has been rearranged. There is a new chapter on the conformal model. The chapter is also available for download at the book's web page.

Visit the book's web page at faculty.luther.edu/~macdonal/laga to download its table of contents, preface, and index.

There is a sequel, *Vector and Geometric Calculus*, by the same author. See faculty.luther.edu/~macdonal/vagc/

I commend Alan Macdonald for his excellent book! His exposition is clean and spare. He has done a fine job of engineering a gradual transition from standard views of linear algebra to the perspective of geometric algebra. The book is sufficiently conventional to be adopted as a textbook by an adventurous teacher without getting flack from colleagues. Yet it leads to gems of geometric algebra that are likely to delight thoughtful students and surprise even the most experienced instructors.

-- David Hestenes, Distinguished Research Professor, Arizona State University

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Editorial Review

Review

The combined linear and geometric algebra becomes a necessary, powerful tool or language within physics, computer science, and engineering. Recommended. - Choice

About the Author

Alan Macdonald is Professor Emeritus of Mathematics at Luther College in Decorah Iowa. He received a PhD in mathematics from The University of Michigan in 1970. His research interests include geometric algebra and the foundations of physics. His web page is at faculty.luther.edu/~macdonal.

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